ABSTRACT OF THE

Presidential Address

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PROFESSOR BURDON SANDERSON began his presidential address by claiming for the British Association that, during its sixty years of existence, there had been no great question in the field of scientific inquiry which it had failed to discuss, no important investigation which it had not promoted, and no great discovery which it had not welcomed; but he pointed out that it had still much before it. "The wealthiest country in the world," he said, "which has profited more—vastly more—by science than any other, England stands alone in the discredit of refusing the necessary expenditure for its development, and cares not that other nations should reap the harvest for which her sons have laboured." A majority of the community might be in opposition to such views, but he called upon all the members of the British Association to unite in insisting that the claims of science to public support should be recognised. He announced the subject of his address as Biology, including the origin and first use of the word, and a discussion of the relations between it and other branches of natural science. Professor Burdon Sanderson then proceeded as follows:

ORIGIN AND MEANING OF THE TERM "BIOLOGY."

"The word 'biology,' which is now so familiar as comprising the sum of the knowledge which has as yet been acquired concerning living nature, was unknown until after the beginning of the present century. The term was first employed by Treviranus, who proposed to himself, as a life-task, the development of a new science, the aim of which should be to study the forms and phenomena of life, its origin and the conditions and laws of its existence. It was a new thing to regard the study of living nature as a science by itself, worthy to occupy a place by the side of natural philosophy, and it was therefore necessary to vindicate its claim to such a position. Treviranus declined to found this claim on its useful applications to the arts of agriculture and medicine, but dwelt rather on its value as a discipline and on its surpassing interest. Being himself a mathematician as well as a naturalist he approached the subject both from the side of natural philosophy and from that of natural history, and desired to found the new science on the fundamental distinction between living and non-living material. The difference between vital and physical processes he accordingly found, not in the nature of the processes themselves, but in their coördination—that is, in their adaptedness to a given purpose and to the peculiar and special relation in which the organism stands to the external world. The purpose which I have in view in taking you back as I have done to the beginning of the century is not merely to commemorate the work which was done by the wonderfully acute writer to whom we owe the first conception of the science of life as a whole, but to show you that this conception, as expressed in his ideas of the relations between vital and physical processes, can still be accepted as true. They suggest the idea of organism as that to which all other biological ideas must relate. They also suggest, although perhaps they do not express it, that action is not an attribute of the organism but of its essence—that if, on the one hand, protoplasm is the basis of life, life is the basis of protoplasm. Their relations to each other are reciprocal.

"Whether we speak with Treviranus about adaptation or are content to take organism as our point of departure, it means that, regarding a plant or an animal as an organism, we concern ourselves primarily with its activities or, to use the word which best expresses it, its energies. Now the first thing that strikes us in beginning to think about the activities of an organism is that they are naturally distinguishable into two kinds, according as we consider the action of the whole organism in its relation to the external world or to other organisms, or the action of the parts or organs in their relation to each other. The distinction to which we are thus led between the internal and external relations of plants and animals has of course always existed, but it has only lately come into such prominence that it divides biologists more or less completely into two camps: on the one hand, those who make it their aim to investigate the actions of the organism and its parts by the accepted methods of physics and chemistry, carrying this investigation as far as the conditions under which each process manifests itself will permit; and, on the other hand, those who interest themselves rather in considering the place which each organism occupies and the part which it plays in the economy of nature. This is the branch of physiology which has been designated 'œcology' by Professor Haeckel. It is apparent that the two lines of inquiry, although they equally relate to what the organism does rather than that to what it is, and therefore have equal right to be included in the one great science of life, or biology, yet lead in directions which are scarcely even parallel. I should have liked, had it been within my power, to present to you both aspects of the subject in equal fulness; but I feel that I shall best profit by the present opportunity if I derive my illustrations chiefly from the division of biology to which I am attached—namely, that which concerns the internal relations of the organism—it being my object not to specialise in either direction, but, as Treviranus desired to do, to regard it as part—surely a very important part—of the great science of nature. The origin of life, the first transition from non-living to living, is a problem which lies outside of our scope. No seriously minded person, however, doubts that organised nature as it now presents itself to us has become what it is by a process of gradual perfecting or advancement, brought about by the elimination of those organisms which failed to obey the fundamental principle of adaptation which Treviranus indicated. Each step, therefore, in this evolution is a reaction to external influences, the motive of which is essentially the same as that by which from moment to moment the organism governs itself; and the whole process is a necessary outcome of the fact that those organisms are most prosperous which look best after their own welfare. From the short summary of the connexion between different parts of our science you will see that biology naturally falls into three divisions, and these are even more sharply distinguished by their methods than by their subjects—namely, physiology, of which the methods are entirely experimental; morphology, the science which deals with the forms and structure of plants and animals, and of which it may be said that the body is anatomy and that the soul is development; and, finally, œcology, which uses all the knowledge it can obtain from the other two, but chiefly rests on the exploration of the endless and varied phenomena of animal and plant life as they manifest themselves under natural conditions. This last branch of biology is by far the most attractive. In it those qualities of mind which especially distinguish the naturalist find their highest exercise, and it represents more than any other branch of the subject what Treviranus termed the 'philosophy of living nature.' Notwithstanding the very general interest which several of its problems excite at the present moment I do not propose to discuss any of them, but rather to limit myself to the humbler task of showing that the fundamental idea which finds one form of expression in the world of living beings regarded as a whole—the prevalence of the best—manifests itself with equal distinctness and plays an equally essential part in the internal relations of the organism in the great science which treats of them—namely, physiology.

ORIGIN AND SCOPE OF MODERN PHYSIOLOGY.

"Just as there was no true philosophy of living nature until the time of Darwin, we may with almost equal truth say that physiology did not exist as a science before Johannes Müller. Müller taught in Berlin from 1833 to 1857; but during the period of his greatest activity times were changing, and he was changing with them. During his long career as professor at Berlin he became more and more objective in his tendencies and exercised an influence in the same direction on the men of the next generation, teaching them that it was better and more useful to observe than to philosophise; so that, although he himself is truly regarded as the last of the vitalists—for he was a vitalist to the last—his successors were adherents of what has been very inadequately designated the mechanistic view of the phenomena of life. The change thus brought about just before the middle of this century

was a revolution. It was not a substitution of one point of view for another, but simply a frank abandonment of theory for fact, of speculation for experiment. Physiologists ceased to theorise because they had found something better to do. May I try to give you a sketch of this era of progress?

"Great discoveries as to the structure of plants and animals had been made in the course of the previous decade, and those especially which had resulted from the introduction of the microscope as an instrument of research. By its aid Schwann had been able to show that all organised structures are built up of those particles of living substance which we now call cells and recognise as the seats and sources of every kind of vital activity. Hugo Mohl, working in another direction, had given the name 'protoplasm' to a certain hyaline substance which forms the lining of the cells of plants, though no one as yet knew that it was the essential constituent of all living structures—the basis of life no less in animals than in plants. And, finally, a new branch of study—histology—founded on observations which the microscope had for the first time rendered possible, had come into existence. Bowman, one of the earliest and most successful cultivators of this new science, called it 'physiological anatomy,'[1] and justified the title by the very important inferences as to the secreting function of epithelial cells and as to the nature of muscular contraction, which he deduced from his admirable anatomical researches. From structure to function, from microscopical observation to physiological experiment, the transition was natural. Anatomy was able to answer some questions, but it asked many more. Fifty years ago physiologists had microscopes, but they had no laboratories. English physiologists—Bowman, Paget, Sharpey—were at the same time anatomists, and in Berlin Johannes Müller taught comparative anatomy and pathology as well as anatomy and physiology; but soon that specialisation which, however much we may regret its necessity, is an essential concomitant of progress became more and more inevitable. The structural conditions on which the processes of life depend had become, if not known, at least accessible to investigation; but very little indeed had been ascertained of the nature of the processes themselves—so little, indeed, that if at this moment we could blot from the records of physiology the whole of the information which had been acquired, say, in 1840, the loss would be difficult to trace—not that the previously known facts were of little value, but because every fact of moment has since been subjected to experimental verification. It is for this reason that, without any hesitation, we accord to Müller and to his successors, Brücke, Du Bois Reymond and Helmholtz, who were his pupils, and Ludwig in Germany, and to Claude Bernard[2] in France, the title of founders of our science; for it is the work which they began at that remarkable time (1845–55), and which is now being carried on by their pupils or their pupils' pupils in England, America, France, Germany, Denmark, Sweden, Italy and even in that youngest contributor to the advancement of science, Japan, that physiology has been gradually built up to whatever completeness it has at present attained. What were the conditions which brought about this great advance which coincided with the middle of the century? There is but little difficulty in answering the question. There was a leading idea in the minds of those who were chiefly concerned in bringing it about that, however complicated the conditions under which vital energies manifest themselves, they can be divided into processes identical in nature with those of the non-living world, and, as a corollary to this, that the analysing of a vital process into its physical and chemical constituents, so as to bring these constituents into measurable relation with physical or chemical standards, is the only mode of investigating them which can lead to satisfactory results. This new school profited by the advances which had been made in physics, partly by borrowing from the physical laboratory various improved methods of observing the phenomena of living beings, but chiefly in consequence of the direct bearing of the crowning discovery of that epoch—that of the conservation of energy—on the discussions which then took place as to the relations between vital and physical forces. I will not attempt even to enumerate the achievements of that epoch of progress. I may, however, without risk of wearying you, indicate the lines along which research at first proceeded and draw your attention to the contrast between then and now. At present a young observer who is zealous to engage in research finds himself provided with the most elaborate means of investigation, the chief obstacle to his success being that the problems which have been left over by his predecessors are of extreme difficulty, all of the easier questions having been worked out. There were then also difficulties, but of an entirely different kind. The work to be done was in itself easier, but the means for doing it were wanting, and every investigator had to depend on his own resources. Consequently the successful men were those who, in addition to scientific training, possessed the ingenuity to devise and the skill to carry out methods for themselves. The work by which Du Bois Reymond laid the foundation of animal electricity would not have been possible had not its author, besides being a trained physicist, known how to do as good work in a small room in the upper floor of the old University building at Berlin as any which is now done in his splendid laboratory. Had Ludwig not possessed mechanical aptitude, in addition to scientific knowledge, he would have been unable to devise the apparatus by which he measured and recorded the variations of arterial pressure (1848), and verified the principles which Young had laid down thirty years before as to the mechanics of the circulation. Nor, lastly, could Helmholtz, had he not been a great deal more than a mere physiologist, have made those measurements of the time relations of muscular and nervous responses to stimulation, which not only afford a solid foundation for all that has been done since in the same direction, but have served as models of physiological experiment, and as evidence that perfect work was possible and was done by capable men, even when there were no physiological laboratories. Each of these examples relates to work done within a year or two of the middle of the century. If it were possible to enter more fully into the scientific history of the time, we should, I think, find the clearest evidence, firstly, that the foundation was laid in anatomical discoveries, in which it is gratifying to remember that English anatomists (Allen Thomson, Bowman, Goodsir, Sharpey) took a considerable share; and, secondly, that progress was rendered possible by the rapid advances which, during the previous decade, had been made in physics and chemistry, and the participation of physiology in the general awakening of the scientific spirit which these discoveries produced. I venture, however, to think that, notwithstanding the operation of these two causes, or rather combinations of causes, the development of our science would have been delayed had it not been for the exceptional endowments of the four or five young experimenters whose names I have mentioned, each of whom was capable of becoming a master in his own branch and of guiding the future progress of inquiry.

THE SPECIFIC ENERGIES OF THE ORGANISMS.

"In its more extended sense the 'specific energy' of a part or organ—whether that part be a secreting cell, a motor cell of the brain or spinal cord, or one of the photogenous cells which produce the light of the glowworm, or the protoplasmic plate which generates the discharge of the torpedo—is simply the special action which it normally performs, its norma or rule of action being in each instance the interest of the *organism* as a whole of which it forms part, and the exciting cause some influence outside of the excited structure, technically called a stimulus. It thus stands for a characteristic of living structures which seems to be universal. It cannot well be doubted that, as every living cell or tissue is called upon to act in the interest of the whole, the organism must be capable of influencing every part so as to regulate its action. May I now ask you to consider in detail one or two illustrations of physiological reaction—of the 'letting off' of specific energy?

"Probably everyone is acquainted with some of the familiar proofs that an object is seen for a much longer period than it is actually exposed to view; that the visual reaction lasts much longer than its cause. More precise observations teach us that this response is regulated according to laws which it has in common with all the higher functions of an organism. If, for example, the cells in the brain of the torpedo are 'let off'—that is, awakened by an external stimulus—the electrical discharge, which, as in the case of vision, follows after a certain interval, lasts a certain time, first rapidly increasing to a maximum of intensity, and then more slowly diminishing. In like manner, as regards the visual apparatus, we have, in the response to a sudden invasion of the eye by

[1] The first part of the "Physiological Anatomy" appeared in 1843; it was concluded in 1856.

[2] It is worthy of note that these five distinguished men were nearly contemporaries: Ludwig graduated in 1839, Bernard in 1843, the other three between those dates. Three survive—Helmholtz, Ludwig and Du Bois Reymond.

light, a rise and fall of a similar character. In the case of the electrical organ, and in many analogous instances, it is easy to investigate the time relations of the successive phenomena, so as to represent them graphically. Again, it is found that in many physiological reactions the period of rising 'energy' (as Helmholtz has called it) is followed by a period during which the responding structure is not only inactive, but its capacity for energising is so completely lost that the same exciting cause which a moment before 'let off' the characteristic response is now without effect. As regards vision, it has long been believed that these general characteristics of physiological reaction have their counterpart in the visual process, the most striking evidence being that in the contemplation of a lightning flash—or, better, of an instantaneously illuminated white disc—the eye seems to receive a double stroke, indicating that, although the stimulus is single and instantaneous, the response is reduplicated. The most precise of the methods we until lately possessed for investigating the waxing and waning of the visual reaction were not only difficult to carry out but left a large margin of uncertainty. It was therefore particularly satisfactory when M. Charpentier of Nancy, whose merits as an investigator are perhaps less known than they deserve to be, devised an experiment of extreme simplicity which enables us not only to observe but to measure with great facility both phases of the reaction. From the results of this experiment he has been enabled to make out another fact in relation to the visual reaction which is, I think, of equal importance. In all the instances, excepting the retina, in which the physiological response to stimulus has a definite time limitation, and in so far resembles an explosion, it can be shown experimentally that the process is propagated from the part first directly acted on to other contiguous parts of similar endowment. M. Charpentier has now been able by a method, which, although simple, I must not attempt to describe, not only to prove the existence of such propagation, but to measure its rate of progress over the visual field.

"There is another aspect of the visual response to the stimulus of light which, if I am not trespassing too long on your patience, may, I think, be interesting to consider. As the relations between the sensations of colour and the physical properties of the light which excites them are amongst the most certain and invariable in the whole range of vital reactions, it is obvious that they afford as fruitful a field for physiological investigation as those in which white light is concerned. It has been lately assumed by some that vision, like every other specific energy, having been developed progressively, objects were seen by the most elementary forms of eye only in chiaroscuro, that afterwards some colours were distinguished, and eventually all. As regards hearing it is so. The organ which, on structural grounds, we consider to represent that of hearing in animals low in the scale of organisation has nothing to do with sound. As regards vision evidence is wanting. There is, so far as I know, no proof that visual organs which are so imperfect as to be incapable of distinguishing the forms of objects may not be affected differently by their colours. Even if it could be shown that the least perfect forms of eye possess only the power of discriminating between light and darkness, the question whether in our own such a faculty exists separately from that of distinguishing colours is one which can only be settled by experiment. There is a German proverb which says, 'Bei Nacht sind alle Katzen grau' [All cats are grey at night]. The fact which this proverb expresses presents itself experimentally when a spectrum projected on a white surface is watched, whilst the intensity of the light is gradually diminished. As the colours fade away they become indistinguishable as such, the last seen being the primary red and green. Finally they also disappear, but a grey band of light still remains, of which the most luminous part is that which before was green.[3] Without entering into details, let us consider what this tells us of the specific energy of the visual apparatus. Whether or not the faculty by which we see grey in the dark is one which we possess in common with animals of imperfectly developed vision, there seems to be little doubt that there are individuals of our own species who, in the fullest sense of the expression, have no eye for colour, in whom all colour sense is absent—persons who inhabit a world of grey, seeing all things as they might have done had they and their ancestors always lived nocturnal lives. In the theory of colour vision, as it is commonly stated, no reference is made to such a faculty as we are now discussing.

[3] Hering: "Untersuchung eines total Farbenblinden"; Pflüger's Archiv, vol. xlix., 1891, p. 563.

EXPERIMENTAL PSYCHOLOGY.

"Resisting the temptation to pursue this subject further, I will now ask you to follow me into a region which, although closely connected with the subjects we have been considering, is beset with greater difficulties—the subject in which, under the name of 'physiological' or 'experimental psychology,' physiologists and psychologists have of late years taken a common interest—a borderland not between fact and fancy, but between two methods of investigation of questions which are closely related, which here, though they do not overlap, at least interdigitate. It is manifest that, quite irrespectively of any foregone conclusion as to the dependence of mind on processes of which the biologist is accustomed to take cognisance, mind must be regarded as one of the 'specific energies' of the organism, and should on that ground be included in the subject-matter of physiology. As, however, our science, like other sciences, is limited not merely by its subject but also by its method, it actually takes in only so much of psychology as is experimental. Thus sensation, although it is psychological, and the investigation of its relation to the special structures by which the mind keeps itself informed of what goes on in the outside world have always been considered to be in the physiological sphere; and it is by anatomical researches relating to the minute structure and to the development of the brain, by observation of the facts of disease, and, above all, by physiological experiment that those changes in the ganglion cells of the brain and spinal cord which are the immediate antecedents of every kind of bodily action have been traced. Between the two—that is, between sensation and the beginning of action—there is an intervening region which the physiologist has hitherto willingly resigned to psychology, feeling his incompetence to use the only instrument by which it can be explored—that of introspection. This consideration enables us to understand the course which the new study (I will not claim for it the title of a new science, regarding it as merely a part of the great science of life) has hitherto followed and why physiologists have been unwilling to enter on it.

"I will make no attempt even to enumerate the special lines of inquiry which during the last decade have been conducted with such vigour in all parts of the world, all of them being traceable to the influence of the Leipsic school, but will content myself by saying that the general purpose of these investigations has been to determine with the utmost attainable precision the nature of psychical relations. Some of these investigations begin with those simpler reactions which more or less resemble those of an automatic mechanism, proceeding to those in which the resulting action or movement is modified by the influence of auxiliary or antagonistic conditions, or changed by the simultaneous or antecedent action on the reagent of other stimuli, in all of which cases the effect can be expressed quantitatively; others lead to results which do not so readily admit of measurement. In pursuing this course of inquiry the physiologist finds himself as he proceeds more and more the coadjutor of the psychologist, less and less his director; for, whatever advantage the former may have in the mere technique of observation, the things with which he has to do are revealed only to introspection, and can be studied only by methods which lie outside of his sphere. I might in illustration of this refer to many recent experimental researches—such, for example, as those by which it has been sought to obtain exact data as to the physiological concomitants of pleasure and of pain, or as to the influence of weariness and recuperation as modifiers of psychological reactions. Another outwork of the mental citadel which has been invaded by the experimental method is that of memory. Even here it can be shown that in the comparison of transitory as compared with permanent memory—as, for example, in the learning by heart of a wholly uninteresting series of words, with subsequent oblivion and reacquisition—the labour of acquiring and reacquiring may be measured, and consequently the relation between them; and that this ratio varies according to a simple numerical law. I think it not unlikely that the only effect of what I have said may be to suggest to some of my hearers the question, What is the use of such inquiries? Experimental psychology has, to the best of my knowledge, no technical application. The only satisfactory answer I can give is that it has exercised, and will exercise in future, a helpful influence on the science of life.

PHOTOTAXIS AND CHEMIOTAXIS.

"Considering that every organism must have sprung from a unicellular ancestor, some have thought that unless we are prepared to admit a deferred epigenesis of mind we must look for psychical manifestations even amongst the lowest animals, and that as in the protozoon all the vital activities are blended together, mind should be present amongst them not merely potentially but actually, though in diminished degree. Such a hypothesis involves ultimate questions which it is unnecessary to enter upon. It will, however, be of interest in connexion with our present subject to discuss the phenomena which served as a basis for it—those which relate to what may be termed the behaviour of unicellular organisms and of individual cells, in so far as these last are capable of reacting to external influences. The observations which afford us most information are those in which the stimuli employed can be easily measured, such as electrical currents, light, or chemical agents in solution. A single instance, or at most two, must suffice to illustrate the influence of light in directing the movements of freely moving cells, or, as it is termed, phototaxis. The rod like purple organism called by Engelmann bacterium photometricum[4] is such a light-lover that if you place a drop of water containing these organisms under the microscope, and focus the smallest possible beam of light on a particular spot in the field, the spot acts as a light trap and becomes so crowded with the little rodlets as to acquire a deep port-wine colour. If, instead of making his trap of white light, he projected on the field a microscopic spectrum, Engelmann found that the rodlets showed their preference for a spectral colour which is absorbed when transmitted through their bodies. By the aid of a light trap of the same kind the very well-known spindle-shaped and flagellate cell of Euglena can be shown to have a similar power of discriminating colour, but its preference is different. This familiar organism advances with its flagellum forwards, the sharp end of the spindle having a red or orange eye-point. Accordingly, the light it loves is again that which is most absorbed—viz., the blue of the spectrum (line F). These examples may serve as an introduction to a similar one in which the directing cause of movement is not physical but chemical. The spectral light trap is used in the way already described; the organisms to be observed are not coloured, but bacteria of that common sort which twenty years ago we used to call bacterium termo, and which is recognised as the ordinary determining cause of putrefaction. These organisms do not care for light, but are great oxygen lovers. Consequently, if you illuminate with your spectrum a filament of a confervoid alga, placed in water containing bacteria, the assimilation of carbon and consequent disengagement of oxygen is most active in the part of the filament which receives the red rays (B to C). To this part, therefore, where there is a dark band of absorption, the bacteria which want oxygen are attracted in crowds. The motive which brings them together is their desire for oxygen. Let us compare other instances in which the source of attraction is food. The plasmodia of the myxomycetes, particularly one which has been recently investigated by Mr. Arthur Lister,[5] may be taken as a typical instance of what may be called the chemical allurement of living protoplasm.

"Another example is also derived from the physiology of plants. Very shortly after the publication of Engelmann's observations of the attraction of bacteria by oxygen, Pfeffer made the remarkable discovery that the movements of the antherozoids of ferns and of mosses are guided by impressions derived from chemical sources, by the allurement exercised upon them by certain chemical substances in solution—in one of the instances mentioned by sugar, in the other by an organic acid. The method consisted in introducing the substance to be tested, in any required strength, into a minute capillary tube closed at one end, and placing it under the microscope in water inhabited by antherozoids, which thereupon showed their predilection for the substance, or the contrary, by its effect on their movements. In accordance with the principle followed in experimental psychology, Pfeffer[6] made it his object to determine, not the relative effects of different doses, but the smallest perceptible increase of dose which the organism was able to detect, with the result that, just as in measurements of the relation between stimulus and reaction in ourselves we find that the sensational value of a stimulus depends, not on its absolute intensity, but on the ratio between that intensity and the previous excitation, so in this simplest of vital reagents the same so-called psycho-physical law manifests itself. It is not, however, with a view to this interesting relation that I have referred to Pfeffer's discovery, but because it serves as a centre around which other phenomena, observed alike in plants and animals, have been grouped. As a general designation of reactions of this kind Pfeffer devised the term 'chemotaxis,' or, as we in England prefer to call it, 'chemiotaxis,' and as a constituent phenomenon of the process of inflammation it was familiar in pathology long before it was understood. Cohnheim himself attributed it to changes in the channels along which the cells moved, and this explanation was generally accepted, though some writers, at all events, recognised its incompleteness. But no sooner was Pfeffer's discovery known than Leber,[7] who for years had been working at the subject from the pathological side, at once saw that the two processes were of similar nature."

Finally, after referring to the discreditable position occupied by England in relation to the scientific study of the causes and mode of prevention of infectious diseases, Professor Burdon Sanderson said that the purpose that he had had in view in his address was to show that there was but one principle—that of adaptation—separating biology from the exact sciences; and he concluded as follows:

"It may perhaps be thought that their way of putting it is too teleological, and that in taking, as it were, as my text this evening so old-fashioned a biologist as Treviranus, I am yielding to a retrogressive tendency. It is not so. What I have desired to insist on is that organism is a fact which encounters the biologist at every step in his investigations; that in referring it to any general biological principle, such as adaptation, we are only referring it to itself, not explaining it; and that no explanation will be attainable until the conditions of its coming into existence can be subjected to experimental investigation so as to correlate them with those of processes in the non-living world."

[4] Engelmann: "Bacterium photometricum," Onderzoekingen Physiol. Lab., Utrecht, vol. vii., p 209; also, Ueber Licht und Farbenperception niederster Organismen, Pflüger's Archiv, vol. xxix., p 387.

[5] Lister: On the Plasmodium of Badhamia Auricularis, &c., Annals of Botany, No. 5, June, 1888.

[6] Pfeffer: Untersuchungen aus dem Botanischen Institute zu Tübingen, vol. i., part 3, 1884.

[7] Leber: Die Anhäufung der Leucocyten am Orte des Entzündungsreizes &c. Die Entstehung der Entzündung &c., pp. 423-464. Leipzig, 1891.

An Address
ON THE
SURGERY OF THE AIR PASSAGES AND THORAX IN CHILDREN.

Delivered at the Royal College of Surgeons of England.

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(Continued from p. 618.)

Papillomata of the Larynx.

In the history of a fair proportion of cases of papillomata of the larynx a little difficulty of breathing will be found to have existed from birth or to have developed in very early life. Not infrequently, however, little is noticed about the child beyond some loss of voice until serious interference with respiration occurs, calling for immediate relief. Tracheotomy has then to be performed and the diagnosis is not arrived at until the cause of the difficulty in leaving out the tube is investigated. Before considering further these cases of papillomata of the larynx I will refer to an interesting condition which is occasionally to be met with in newly born infants—where inspiration is accompanied by a curious croaking noise, the cry sound being, however, quite clear. The croak continues during sleep and even when an anæsthetic is given. It is, however, variable in degree and occasionally the distress in breathing is considerable and is accompanied by some recession above the sternum. These conditions appear to depend upon an overcurved and rigid state

of the epiglottis and never seem to be attended with fatal results, but tend to get well as the child grows. Dr. Lees, in vol. xxxiv. of the Transactions of the Pathological Society, describes a case in a child a year old. The peculiar symptoms had existed from birth. A view was obtained with the laryngoscope and it was seen that the epiglottis was folded on itself and that the aryteno-epiglottic folds were close together and almost overlapping. Shortly afterwards the child contracted diphtheria and died. The post-mortem appearances corresponded with what had been seen with the laryngoscope, the epiglottis being much more curled than normal and the aryteno-epiglottic folds being almost in contact. These cases are to be distinguished from laryngismus stridulus, the attacks of which come on suddenly—often in the night—and do not continue during sleep. They generally depend on reflex and particularly on gastric disturbance, and are usually benefited by general treatment, such as purgatives and emetics. Two conditions which not infrequently occasion difficult respiration must also be remembered—viz., adenoid vegetations and nasal obstruction from specific rhinitis. The results of nasal or naso-pharyngeal obstruction in early infancy are very serious, because compensating mouth breathing is difficult and in the case of some children during sleep it is impossible. Dr. Collier, formerly a resident officer at the Hospital for Sick Children, Great Ormond-street, has paid a good deal of attention to this subject and has given me the following account of the advantages to be gained by nasal intubation in certain of these conditions. French catheter tubing was used; it was dipped into hot water and suitably curved. A piece was passed along each nostril, reaching back to the lower edge of the soft palate and projecting a short distance through the anterior nares, where it was fixed by silk to its fellow and by strapping to the cheek. The following is a good example of a severe case of nasal dyspnœa.

Case 32.—The patient, an infant five weeks old, was admitted to the Hospital for Sick Children, Great Ormond-street, under Dr. Cheadle's care. The child had been healthy at birth but had been ailing for a fortnight, the chief troubles being that it would not take the breast, that it would not feed with a spoon, that it did not sleep for longer than a minute or two, and that on waking it screamed. The previous night it had been convulsed. On admission there were nasal catarrh and signs suggesting collapse of the lung bases posteriorly, but no general bronchitis. When watching the child one noticed that it dropped off to sleep immediately, but in a few seconds it awoke, screamed and again slept, and repeated the cycle. It was obvious that this trouble was due to failure to keep open the buccal cavity as soon as the palate and tongue muscles were relaxed by sleep. As regards treatment, the child was fed by means of a soft œsophageal tube passed by the mouth, and then naso-pharyngeal intubation was done In a few minutes the child was soundly asleep and slept well for an hour at a time. The tubes were removed next morning, but it was necessary to return them each night for three nights. At the end of a week the lungs showed nearly normal signs.

Nasal obstruction, even catarrh from cold, is always serious in infants. If obstruction interferes with sleep intubation is of value as a temporary measure. In cases of laryngismus stridulus the nose and pharynx should always be examined. Adenoids should be removed, however young the patient, naso-pharyngeal intubation being only a temporary measure. I have seen well-marked adenoids produce nasal obstruction in children a few weeks old, the adenoids being evidently congenital in origin. Mouth breathing is an acquired habit, and it follows therefore that infants with serious naso-pharyngeal obstruction cannot live unless the condition is relieved by surgical interference.

Compound papillomata of the larynx are often of congenital origin, but frequently no marked symptoms are noticed till the child is some years of age. Holmes, in his book on the "Surgical Treatment of Children's Diseases," which was published in 1869, gives a list of five fatal cases in children twelve years of age and under. These cases were taken from the first seventeen volumes of the Transactions of the Pathological Society. Two died from symptoms of gradual obstruction, one in a recurrent attack of suffocative cough, one after tracheotomy—from ulceration by pressure of the tube opening into the innominate artery—one during the operation of tracheotomy, one of the cases had always had loud breathing, and one had had loud breathing for three years—that is, from the age of fourteen months. It will generally be found on careful inquiry that however acutely the urgent symptoms may have arisen there has always been something wrong to be noticed previously, either in the voice or the breathing. The only certain method of diagnosis is by the laryngoscope, and in young children the obstacles to a proper examination are very great in consequence of the narrowness of the fauces, enlargement of the tonsils and the great amount of mucous fluid which is poured out when an examination is attempted. Indeed, it is exceptional for even persons skilled in the use of the laryngoscope to be able to make a very satisfactory examination.

In vol. xxxviii. of the Transactions of the Royal Medical and Chirurgical Society there is the report of a typical case of warty growth in the larynx. A boy aged seven was admitted to St. Thomas's Hospital under the care of Dr. Barker with his voice reduced to a whisper. The breathing was regular, though laboured and hurried. The mother stated that he had been wheezy from birth, but that the respiration had become more difficult and noisy during the last year. Leeches were applied and mercurial inunction was ordered. He improved a little at first but a few nights afterwards he died suddenly. The post-mortem examination was made by Dr. Bristowe. The rima glottidis was almost completely closed by warty growths of half the size of a marble. The growths consisted of three or four more or less pedunculated masses, springing from the upper and lower vocal cords and the interval between them. Microscopically they presented the characters of ordinary warty growths. In a case with such a definite history as this the probability of the obstruction in the larynx being due to papillomata is very great. Oftentimes, however, the history is obscure or absent and the surgeon may then be in doubt whether the condition is due to a foreign body or laryngeal inflammation.

The treatment of compound papillomata in children may be considered under the following heads: (1) endo-laryngeal removal; (2) intubation; (3) tracheotomy, allowing the patient to wear the tube for a considerable time in the hope of spontaneous disappearance of the growths; (4) tracheotomy, followed by thyrotomy, with removal of growths; and (5) tracheotomy and thyrotomy at the same operation.

The endo-laryngeal removal of papillomata is not often possible or indeed advisable in children. The difficulty of complete removal is very great, and speedy and active recurrence would be likely (for this form of warty growth is almost always multiple in children), and some of the growth would be out of sight with the laryngoscope. A very expert and practised operator might possibly deal in this way with very favourable cases—namely, where growths are limited in number and the child is of an age and temperament to allow of frequent and satisfactory examination.

Treatment by intubation is never advisable; the growths are likely to bleed or to be irritated and inflamed and made more difficult of subsequent removal. In vol. xl. of the Transactions of the Pathological Society a case is recorded by Mr. Lennox Browne where a child aged three was intubated for laboured respiration which was caused by warty growths. Since birth the child had had no voice and had always suffered more or less from difficulty of breathing. The intubation caused very free bleeding into the trachea, tracheotomy had to be substituted, and death resulted. Intubation was given a very extended trial in a recurrent case under my own care, but the relief to the breathing was only of a temporary character, whilst the tube was in position, and the growths were much irritated by it.

It has been held by some that if tracheotomy is done and the tube be worn for some months or years, so that the larynx is at rest, the tendency to the formation of these growths will die out and they will undergo spontaneous cure. This plan I have seen tried in a number of cases, but never with any satisfactory result; indeed, when the larynx has been at length opened it has been found to be full of growths. A few cases of supposed spontaneous disappearance have been recorded, and I will briefly refer to some of them. In THE LANCET of April 6th, 1889, Dr. Hunter Mackenzie gives the case of a boy aged five who was seen at the Western Dispensary, Edinburgh, in April, 1883, suffering from difficulty in breathing. The exact nature of the obstruction could not be made out. Tracheotomy was done and the child wore the tube for a year. During this time there was evidence by the laryngoscope of inflammatory thickening and warty growths of the larynx. This gradually

disappeared and the cords cleared up, and at the end of a year the tube was withdrawn. In 1889, six years afterwards, the voice was clear and there was no indication of a relapse.

Eliasburg of Minsk performed thyrotomy on a boy aged ten in December, 1887, and again in February, 1888, for multiple papillomata. In April Kosinski of Warsaw again did thyrotomy, removing the growths and the left vocal cord. On June 26th, 1868, for alarming asphyxia, tracheotomy was done and a month later the whole larynx was found to be blocked with growths. From the beginning of October, however the growths began to shrivel and the boy from time to time expectorated pieces of flesh. The tracheotomy tube was worn until March, 1890, and in 1891 there was no sign of recurrence and the boy could speak in a distinct but harsh voice. According to Eliasburg this was only the fourth instance in international literature of spontaneous disappearance of papillomata, and from this case he advocates that laryngeal papillomata should be treated by tracheotomy alone. At the annual meeting of the French Laryngological Association in 1891 Dr. Garel gave accounts of two cases illustrating the possibility of spontaneous disappearance in children after tracheotomy. In one case a boy aged eleven wore a cannula for two years, and then, as the laryngeal appearances had much improved, it was removed and the opening allowed to close without any after trouble arising. There does not appear to be sufficient evidence that by the performance of tracheotomy alone laryngeal papillomata (except in rare instances) will disappear. In the case of very young children, after tracheotomy has been done for the relief of symptoms, it will often be wise to postpone any radical measure for the removal of the growths and to wait until the larynx is more fully developed. As examples I give the following cases.

Case 33.—A girl aged nine years and nine months had the operation of tracheotomy performed at the age of eighteen months for dyspnœa and loss of voice. She had worn the tracheotomy tube, except for short intervals, up to the time of her admission to the Hospital for Sick Children, Great Ormond-street. On April 20th, 1891, eight years after the original tracheotomy, I performed thyrotomy, and removed a large mass of papillomata with scissors; the cautery was applied to the pedicles and after nine days the tracheotomy tube was left out. The child made a good recovery, with a fairly strong voice, which at the time of her discharge from the hospital (May 20th) could be heard across the ward.

Case 34.—The patient, a girl aged four, was admitted to St. Thomas's Hospital under my care in June, 1892, wearing a tracheotomy tube. The previous history of the case was that on Feb. 10th she was admitted to the Derby Infirmary in a moribund condition from dyspnœa. Tracheotomy was successfully performed, but all attempts to make her breathe afterwards without the tube failed. Catheters had been passed from the wound into the mouth, and intubation with O'Dwyer's tubes tried without success. At the time of tracheotomy no cause of obstruction was discovered. The attack was a sudden one, but there was a history of wasting and gradual dyspnœa for fifteen months before the acute trouble. On admission to hospital she was wearing a soft red rubber tube, the tonsils were considerably enlarged, and a number of adenoids could be felt in the pharynx. The tonsils and adenoids were removed, and efforts were made to get the child to breathe through the mouth without success. On Aug. 8th, therefore, the tracheotomy wound was enlarged upwards, and the cricoid and thyroid cartilages were divided. The larynx was found to be completely blocked by papillomatous growths, growing mainly from the ventricles. They were carefully removed with forceps and scissors, and the cautery was applied to the points of attachment. On Sept. 1st she left the hospital with the wound closed, except for a minute fistula about the size of a pin's head. Her breathing was perfectly easy and natural, and she was able to speak in a loud whisper. She was readmitted on Dec. 23rd, 1892, when she breathed with considerable difficulty; the lower ribs were retracted during inspiration. She was intubated the same evening and the breathing became normal. Between this date and Jan. 11th, 1893, the intubation tube was necessary; she coughed up the tube every few days, and it had to be replaced within a few hours. The same intubation tube was retained from Jan. 11th to Feb. 3rd. The child was in good health and spirits and was playing about the ward. The tube was removed on Feb. 3rd and urgent dyspnœa at once occurred, the patient becoming unconscious, and she remained so during the operation of tracheotomy, which Mr. Stabb, the resident assistant surgeon, at once performed, considering that the breath was becoming offensive from the presence of the tube and also that intubation after a prolonged trial had proved but a temporary expedient. A few days later I again performed thyrotomy and found the larynx to be full of growths, which were again freely removed with scissors. A finger when passed from the mouth into the larynx was of great assistance in bringing the attachments of the growths into view. In ten days' time the wound had entirely closed, and the child shortly afterwards left the hospital in just as good condition as regards voice and breathing as after the previous thyrotomy. It is to be hoped, however, that the improvement will be more lasting on this occasion.

If it is considered to be desirable to remove papillomata by division of the thyroid cartilage, it is best to perform a preliminary tracheotomy; but when the operation is required for recurrent trouble and the child has been previously accustomed to the use of a tracheotomy tube the tracheotomy and the exploration of the larynx may be combined in one interference. Thyrotomy is a simple operation and if it is carried out with care it involves little additional risk to an ordinary tracheotomy. Blood must not be allowed to find its way into the trachea and the division of the cartilage must be made exactly in the median line and, if possible, not quite so far as the upper border. With care in the after adjustment of parts there need be no fear as to the maintenance of the parallel position of the cords and the after condition of the voice depends on the amount of tissue which has to be removed and not on the mere exploration. No elaborate tampon tube is necessary for the trachea; it is difficult in young children to obtain one which will act efficiently. All bleeding in external parts must be stopped before the larynx is actually opened. By having a number of small pieces of sponge with strings attached ready for use an assistant can easily keep the trachea above the tube packed, so that no blood can pass down, and with suitable retractors an excellent view of the cords is obtained when about four-fifths of the cartilage have been divided. If cocaine is freely applied from time to time it prevents spasm during manipulation, and with fine scissors curved on the flat the growths can be accurately trimmed away. The most difficult ones to remove are those which are situated between the bands and on the under surface of the epiglottis. By passing the finger from the mouth through the larynx the more concealed growths are better brought into view. The curette does not act very efficiently. It often passes over the surfaces of the growths and leaves their bases untouched. A fine point of Paquelin's cautery may be passed over the points of section and it seems to act more locally and exactly than caustic, such as chromic acid, however carefully it may be applied. The two halves of the cartilage are then adjusted by a couple of sutures and the external soft parts are carefully brought together. The tracheotomy tube can generally be dispensed with after two or three days. When operating on recurrent papillomata, and the larynx has to be opened for the second or third time, it has been my practice not to suture the cartilage, hoping that a more roomy larynx will thus be obtained. The results, so far as the voice is concerned, have been just as satisfactory as when more close approximation was aimed at. In the study of Brun's tables of thyrotomies Albert Hoffa finds that of ninety-four operations only four terminated fatally—one from pyæmia, one from diphtheria and two from hæmorrhage into the lungs. He shows that the operation is not dangerous and that the effects on the voice are extremely dependent on the seat of the lesion and on its special characters. Thyrotomy for removal of multiple papillomata is now quite a common operation, and many so-called successful cases are recorded—i.e., cases which have recovered from the immediate effects of the operation and are in good condition as to breathing and in fair condition as regards the voice a few months afterwards. Unfortunately it is common for such cases to relapse after a year or even later. Cases which have been perfectly cured by one operation are the exception, and recurrence is not uncommon within a year, even when every care is taken to remove all visible growths. This marked tendency to recurrence makes me very sceptical as to reported cures in children by the endo-laryngeal method. Mr. G Stoker brought a very remarkable case before the Medical Society on March 18th, 1889. It was that of a young man who at the age of seven years lost his voice, and was for four years under treatment by a laryngologist, who diagnosed warts and who made many attempts to remove them by

sponging the interior of the larynx. At a special hospital he was afterwards operated on every week with forceps and cautery for 100 weeks. He was then placed under the care of a distinguished laryngologist, who in five years operated 120 times by the endo-laryngeal method; the voice during this time occasionally returned. When the patient arrived at the age of twenty he acquired the knack of auto-laryngeal operation and for two years had succeeded in keeping the larynx fairly free by operating every fortnight, and was able to speak in a gruff voice.

Granulation outgrowths, being caused by the presence of the tube, sometimes occur after tracheotomy, and may occasion difficulty in dispensing with the tube. Tracheal polypus consecutive to tracheotomy for diphtheria, occurring after the cannula has been left out and the wound cicatrised, has been recorded by Revilloid of Geneva. A fresh tracheotomy had to be performed several months after the first, and with a curette a small, thinly pedicled granulation growth was removed. Köhl has collected twelve such case in his "Thèse de Zurich." In vol. xlii. of the Transactions of the Pathological Society Bidwell reports an interesting case of fibroid polypus of the trachea in a boy aged five, who was admitted to the Evelina Hospital under the care of Dr. Tirard for paroxysmal cough, pain on swallowing and some retraction of the ribs. Tracheotomy was done without relief, and examination of the trachea with a probe did not reveal any obstruction. At the post-mortem examination a globular polypus of the size of a marble was found attached by a pedicle to the posterior wall of the trachea opposite to the eighth and ninth rings. Microscopical examination showed the tumour to be a fibroma.

Tracheotomy in children can only be briefly referred to in these lectures. It has of late had a rival in intubation, but it seems likely to hold its place as the operation in most of the conditions of laryngeal obstruction. The results obtained by tracheotomy during the last few years have been more satisfactory, and the surgeon in recommending the operation has more confidence of saving his patient. In looking through the accounts of obstructed breathing twenty or thirty years ago tracheotomy seems to have been reserved as a last chance. Leeches were applied, and mercurial and other drugs were administered, and the operation was done when the strength of the patient was exhausted and the aeration of the blood was considerably interfered with. It was often done in a hurry, without proper precautions being taken as to the cleanliness of the neck, the tube or the instruments. Rapidity in opening the trachea was aimed at, and little attention was paid to bleeding until the tube was inserted. The tracheotomy tubes in use were so constructed as to make ulceration of the trachea very probable. Under exceptional circumstances any surgeon may be called upon to open the trachea in this manner, time not allowing of a deliberate dissection; but in the great majority of cases the respiratory difficulty developes gradually, and if the operation is undertaken before the patient is asphyxiated all this hurry and want of attention to detail are unnecessary and increase the risks very considerably. Early operation is particularly necessary in the case of diphtheritic obstruction, and relief should be afforded as soon as there is evidence of retraction of the ribs. There is rarely any great degree of mechanical obstruction in children without the soft and yielding framework of the thorax showing signs, certainly long before the rigid framework of an adult would be affected. The high operation is now almost universally practised in England in children who are suffering from œdema of the larynx from scald, simple or diphtheritic inflammation of the larynx, difficult breathing due to papillomata, or for any foreign body which may be impacted in the larynx. The low operation is reserved for cases of a foreign body in the trachea or bronchus and possibly for certain tuberculous and syphilitic affections of the larynx. Unless contraindicated by the condition of the patient a little chloroform should be given, since its administration assists the operator considerably and it is not dangerous to the child if it be given sparingly and with judgment. The surgeon should have with him not the regulation two pairs of compression forceps, but half a dozen, just as if he was going to do any ordinary operation. After the skin and fascia have been divided it is unnecessary to use the point of the knife until the pre-tracheal fascia is reached, which must be divided so as to thoroughly expose the tracheal rings. By keeping exactly in the mid-line, the tissues are easily separated with the metal handle of the knife as it is now constructed. I fully agree with Whitehead in his opinion that an ordinary director is too sharp an instrument and that it is likely to cause bleeding, but the use of a special elevator is unnecessary and might induce the operator to use undue force and press upon the soft and yielding trachea, and it is obviously an advantage not to change from knife to elevator. The trachea having been freely opened and dilating forceps introduced, the operation is at an end if hæmorrhage has been previously arrested by the compression forceps—at least, there is no necessity for the hurried attempts to introduce a tube. Having had the opportunity of watching a great many house surgeons in their earlier tracheotomies, the chief dangers have seemed to me to arise from too small an opening into the trachea being made and from too great a hurry to introduce the tube on the part of the operator. Sometimes the edges of the tracheal opening are bent in, the tube is passed, perhaps, into a space in front of the trachea or between the cartilages and their mucous covering, or as it is passed into the trachea it carries membrane before it. Time is then wasted in artificial respiration and all is excitement and anxiety, the very efforts made to relieve the child only increasing the respiratory difficulty. Occasionally the tube is not to hand, and the operator's thoughts are directed to the tube instead of to the patient. What I wish to insist on is that, after making the incision into the trachea, either the dilating forceps should be introduced or the sides of the opening held apart by hooks, and the operator should make absolutely certain that he has opened the trachea and that it is not blocked by membrane or by a foreign body. Blood should be permitted to escape by coughing and any imprisoned contents removed. The tube can then be inserted with gentleness and deliberation. Before commencing it is important to have the legs and arms sufficiently controlled by bandages, so that the struggles of the child during the later stages of the operation and when the effect of the chloroform has ceased may not interfere with the manipulations. The arms should, however, be secured in such a way that they can be instantly released for the purposes of artificial respiration. Many of the details of the operation need not be referred to, since they are given at length in all the text-books. Retractors may be used at the discretion of the operator. If he has good assistants, who will use them properly and not pull the trachea out of place, they may be employed with advantage, but with unskilled assistants the surgeon had far better trust to his finger and thumb on either side of the incision. The isthmus of the thyroid may require division and this in children gives rise to no trouble if it is clamped on either side by forceps. The tube which is in general use at St. Thomas's Hospital is that devised by Durham and since its adoption the ulceration on the anterior wall of the trachea, which formerly was constantly found at the post-mortem examinations, is of rare occurrence. Parker's tube is more simple and less expensive, and is in general use at the Hospital for Sick Children, Great Ormond-street. Morrant Baker's rubber tube may be substituted a few days after operation if the secretions are normal, and in diphtheria if membrane has ceased to form. The great increase of late years in the number of cases which are admitted into hospitals suffering from diphtheria is very striking, more especially since the various fever hospitals now take in a considerable number of cases. Dr. Thorne Thorne attributes this increase to the probable spread of diphtheria in Board Schools, and it seems to be highly probable that the good effects of improved sanitation are thus more than neutralised. Children suffering from diphtheria not infrequently have little constitutional disturbance for a few days, and are considered by the parents to be quite fit to attend school; indeed, the carelessness of some parents is very remarkable. Quite recently a child was brought to my out-patient room with obstruction of one nostril of a week's duration, being accompanied by a discharge. Expecting to find a foreign body, I introduced a pair of forceps and removed a large piece of membrane from the nostril. On inquiry I found that two children of the same family were inmates of a fever hospital suffering from diphtheria, and yet the mother had thought it unnecessary to mention this fact. On several occasions children have come under my observation with diphtheritic membrane on the vulva or near the genitals, and, although the parents were aware that they had other children suffering from diphtheria of the throat, they did not say a word about it until they were asked.

The following table shows the great increase in the number of children under twelve years of age suffering from diphtheria who have been admitted of late years to St. Thomas's Hospital.

TABLE I.

Year.	No. of cases admitted.	No. of tracheotomies.	No. of recoveries after tracheotomy.	Percentage of recoveries.
1880	15	10	3	30·0
1881	12	11	4	36·4
1882	24	15	4	26·7
1883	26	11	5	45·5
1884	57	40	9	22·5
1885	49	33	14	36·9
1886	90	46	10	21·7
1887	107	38	3	7·9
1888	97	46	11	23·9
1889	164	71	21	25·4
1890	92	15	6	46·7
1891	88	29	9	28·6

Total number of tracheotomies 371, with 99 recoveries, or 26·7 per cent.

The following table for cases admitted to the Hospital for Sick Children, Great Ormond-street, during the corresponding years, does not show the same variation, but the accommodation is limited, and only the more urgent cases were admitted.

TABLE II.

Year.	No. of cases admitted.	No. of tracheotomies.	No. of recoveries after tracheotomy.	Percentage of recoveries.
1880	49	20	4	20·0
1881	54	10	0	nil
1882	47	27	8	29·6
1883	34	13	2	15·4
1884	25	8	5	62·5
1885	20	15	3	20·0
1886	51	20	9	45·0
1887	51	28	7	25·0
1888	58	21	1	4·9
1889	51	25	8	32·0
1890	48	11	4	36·3
1891	59	20	2	10·0
1892	68	21	13	61·9

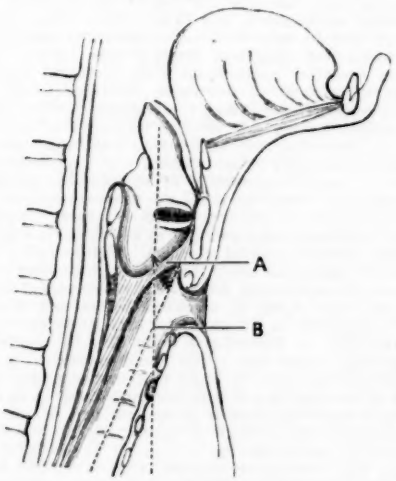
Out of a total of 239 tracheotomies 66 recovered, or 27·6 per cent.

The great variation in the mortality according to the severity of the epidemic renders the statistics of the results after tracheotomy or intubation most misleading, unless they are given for a number of years in succession. For months together the results may be discouraging in the extreme, whilst at another time, under the same conditions of operation and nursing, recovery will be the rule rather than the exception. One house surgeon may commence his experience with a dozen fatal results, whilst another may have five or six recoveries consecutively. Success in tracheotomy for diphtheria depends very largely on the treatment after operation. In vol. xxvi. of the St. Bartholomew's Hospital Reports twenty-two cases of tracheotomy for diphtheria are reported by Drs. Ogle and Willoughby, with twelve recoveries and ten deaths. The average age of the children who recovered was four years and a half, and of the fatal cases two years and one-fifth. In nine of the successful cases tracheotomy was done directly after admission. Nasal feeding by a soft catheter was practised whenever there was difficulty in taking food, and it was persevered in for a week or more if it was found to be necessary. In a depressing disease like diphtheria it is most important to stimulate the powers of the patient, and nasal feeding is far more efficient than the giving of nutrient enemata. Much of the treatment which is advocated in the text-books is apt to be overdone, particularly the routine employment of the tent bed and steam spray. It is quite pitiable to see children fighting for their lives under such enervating conditions. The air of the room should be kept pure and at an even temperature of 65° F.; above all the bed should not be placed near a hot fire with the spray from a kettle constantly playing over the face and body. A sponge kept warm and moist should be always over the tube and the inner tube should be changed every hour or even oftener whilst the discharges are thick. A great deal of harm may be done by a too zealous nurse, especially by the constant introduction of a feather to clear the tube and by attempts to thus extract membrane from the trachea. If actual obstruction takes place it is better for the surgeon to take the tracheotomy tube out altogether and to examine the trachea before replacing it. When membrane is present on the fauces or the pharynx the use of perchloride of mercury by means of a hand spray appears to be more beneficial than solutions of bicarbonate of soda, borax, or phosphate of soda. At the Hospital for Sick Children, Great Ormond-street, a mercury solution of the strength of 1 in 1000 has been employed by Dr. Collier in some seventy cases without producing any signs of irritation or evidence of mercurialism. Concerning the details he writes to me as follows: In using the hand spray it was found necessary to use a tongue depressor, because, however willing the patient might be, the solution did not thoroughly reach the posterior pharyngeal wall unless the tongue was depressed. Each spraying procedure lasted for from two to four minutes, including a pause for a few seconds at the end of each half-minute. Whilst membrane continued to be evident the application was made every three hours; it was then continued for a day or two at intervals of six hours. In nasal cases the nose was douched with warm boracic solution every three hours and was sprayed with a mercury solution after each douching. The tracheotomy wounds were sprayed every two hours with the mercury solution, care being taken that no solution entered the tube. Dr. Cheadle in a lecture stated that he, after a year's trial of mercury solution, was convinced that this method of treatment gave better results than any other he had seen tried. Swabbing and brushing of inflamed surfaces cannot be done without traumatism. Roser[1] advises the use of a tube fitted with iodoform tampon, which he believes constitutes a barrier which the diphtheritic membrane cannot pass. The tampon must exactly obturate the lumen of the trachea and should be replaced after two days. Roser states that of forty-seven patients thus treated during three years at the Marburg clinic 53 per cent. recovered. In 1887 Mr. Watson Cheyne advocated the early opening of the trachea, not so much for dyspnœa as for applying disinfectants directly to the parts, with the hope that if membrane is limited to the larynx its spread down the trachea may be prevented. It is difficult to believe that any such antiseptic barrier can be erected, but an attempt should be made to disinfect all the parts as far as is possible. Under the mercury spray treatment at the Hospital for Sick Children, Great Ormond-street, extension to the larynx did not occur in any case which was admitted without laryngeal diphtheria. Emphysema is not so common a complication after tracheotomy since the high operation has become the established practice and the wound is left freely open. When the opening was made in the lower part of the neck, and the more separated layers of fascia were opened up, emphysema by spreading to the anterior mediastinum was sometimes a serious complication, both by its mechanical effects and by its preparing the way for a diffuse inflammation. Diphtheritic invasion of the wound may lead to extensive sloughing both of the soft parts and the tracheal rings, in which event the tube should if possible be dispensed with and warm antiseptic dressings should be applied. If recovery should take place it is likely to be attended with troublesome stenosis of the trachea from after-contraction of the cicatricial tissue. Extensive hæmorrhage after tracheotomy for diphtheria is now fortunately of rare occurrence. The old-fashioned, greatly curved tube, which was inserted low down in the trachea, frequently caused ulceration of its anterior wall and the large vessels in the neighbourhood were endangered. Maas of Berlin reported seven cases of death in this way, four of which had come under his own observation as follows:—1. A girl aged four, in whom tracheotomy was performed for diphtheria. The tube was retained for six days; death occurred from hæmorrhage fourteen days later. Post-mortem an opening was found in the innominate artery. 2. In a boy aged three the tube was in position for six days for diphtheria. Three days later death occurred from ulceration into the innominate artery. 3. In a boy aged five the death occurred on the ninth day from the same cause. 4. A girl aged three, in whom tracheotomy was performed on the sixth day. The edges of the wound became necrotic and on the eighth day death suddenly took place owing to ulceration causing an opening in the innominate vein. 5. A boy aged three died after eight days from ulceration in the innominate vein. Dr. Hutton of Manchester in 1886 reported a case of hæmorrhage from the innominate artery twelve days after tracheotomy. It is after tracheotomy for diphtheria especially that a difficulty is found in leaving out the cannula. Generally fright on the part of the child is the cause, and with tact and management this is soon overcome. Mr. T. Smith some time ago pointed out that after tracheotomy there may be an

[1] Revue Mensuelle des Maladies de l'Enfance, 1893.

impairment or complete loss of function of the muscles of the larynx, and that a considerable time may elapse before the habit of breathing through the larynx can be re-established. In an article on tracheotomy by the late Dr. W. E. Steavenson, in vol. xviii. of the St. Bartholomew's Hospital Reports, several cases are quoted where the tube had been worn for many months or even years, and yet by tact and management this difficulty had been overcome. One fatal case is mentioned, which, however, is a good example of actual mechanical obstruction. A boy aged two years and three months was admitted to the Hospital for Sick Children, Great Ormond-street, wearing a tracheotomy tube. Tracheotomy had been done nine months previously for diphtheria and he had been unable to breathe since without the tube. He remained in the hospital for eight months; but the tube could never be left out for more than a few hours, and the child was in fear until it was replaced. One evening the child was found dead in his cot, the tube was in the throat and was clear, and there was no evidence to show the cause of death. At the post-mortem examination the whole mucous membrane of the larynx was found to be thickened and the true vocal cords could not be recognised. There was a constriction at the lower aperture of the larynx, which, however, admitted the passage of a goose quill. Dr. Steavenson remarked that the changes were so extensive that it is doubtful whether

FIG. 2.



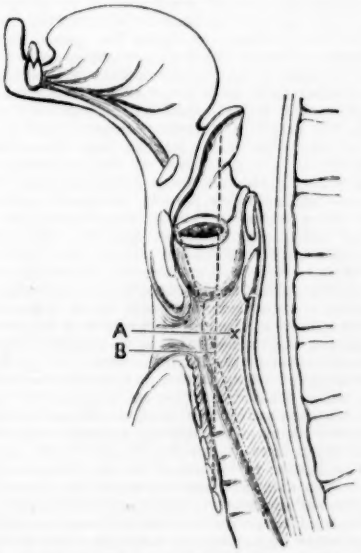
A, Cicatricial tissue. The arrow shows the lumen of the diaphragm. B, The dotted lines show the alteration in the axis of the trachea.

it would have been possible during his youth to have enabled him to breath without a tube. In a paper which was read before the Medical Society in 1890 by Mr. Brook (then house surgeon at the Hospital for Sick Children, Great Ormond-street) and myself, we gave a full description of four cases of stenosis of the larynx and trachea after tracheotomy, and advocated the following plan of treatment—viz., that after ordinary means have been used to leave out the tracheotomy tube intubation by O'Dwyer's method should at once be given a trial, and if no definite improvement speedily ensued then a thorough exploration of the parts should be made, cicatricial tissue should be freely and completely removed, and intubation should be again tried without giving time for recontraction to take place. The following are short abstracts of three of these cases.

A boy aged six came under my care at the Hospital for Sick Children, Great Ormond-street, in 1889. Tracheotomy had been done three years before and many attempts had been made to dispense with the tube, including dilatation by means of Macewen's catheters. On two occasions the tube had been left out long enough for the tracheal opening to close and fresh tracheotomy had on each occasion very shortly to be performed. I first tried intubation with O'Dwyer's tubes, but it was not satisfactory and it was evident that the tube did not lie straight in the larynx, but was tilted forwards and to one side. The tracheal opening was extended upwards and the thyroid was partially divided. We found a rather thick pinkish-white band of fibrous tissue, which commenced just below the cords and extended obliquely downwards from right to left, and thus a kind of diaphragm was formed which nearly closed the lower aperture of the larynx. There was also a general overgrowth of fibrous tissue round the commencement of the trachea, and at this point the trachea was seen to bend backwards. The band was dissected away and also as much of the fibroid thickening as was possible. As soon as the parts had healed intubation was again carried out and was practised intermittingly for several months. The boy had no relapse, and when he was last heard of—viz., two years after leaving hospital—he had no stridor on exertion and possessed a good, loud, rasping voice, which was very useful to him in helping his father as a fish hawker.

A boy aged nine, who had had tracheotomy done for diphtheria four months before he came under my care, was transferred from the medical side at the Hospital for Sick Children, Great Ormond-street, by Dr. Cheadle, as he was unable to breathe without the tube. On enlarging the wound the cause of obstruction was found to be a growth of granulation tissue in the same position as in the previous case, but no cicatricial tissue had developed. The granulation tissue

FIG. 3.



A, The cicatricial tissue in this case extended a long way down the back and sides of the trachea.

was removed by scissors and curette, and intubation was practised until the surface which had been laid bare by the removal of the granulation tissue had completely healed. There was no after-relapse, and the voice completely returned.

A boy aged three and a quarter years. Tracheotomy had been performed for diphtheria four months before he was transferred to my care by Dr. Cheadle. Shortly after the tracheotomy the wound became infected with diphtheria and great sloughing of the soft parts around the trachea took place, with necrosis of more than an inch of the anterior wall of the trachea. In this case intubation was first tried, but without success, and afterwards the tonsils and some adenoids were removed. After a further trial of intubation the tracheotomy tube was again replaced, the opening having been kept patent by a vulcanite plug. The tracheal opening was now freely enlarged under chloroform, and it was found that just below the larynx there was a dense collar of cicatricial tissue, which encroached on the lumen of the trachea and extended a long way down the back and sides of the trachea. The trachea appeared to bend backwards, the part below the cicatricial tissue forming an angle with the part above. All this newly formed tissue was freely dissected away, together with the

lining of the old tracheal opening. Intubation was recommenced a week later and was continued whilst the patient remained in hospital, a period of three months. After this he was intubated as an out-patient and wore the tube for ten days or a fortnight without feeling any discomfort, and he had ordinary food. At the end of four months of this intermittent intubation there was still to be noticed a little stridor on exertion, and phonation had returned; the voice, however, was only a loud whisper. Considering the extensive sloughing of the neck and the necrosis of portions of the tracheal rings, it is not to be wondered at that the case was remarkably intractable. Without operation the patient would have been condemned to wear a tracheotomy tube for life. The success obtained was entirely due to the persistent dilatation which was maintained by Mr. Brook.

From an experience of several cases similar to the ones quoted as examples I feel sure that when actual stenosis exists only active and persistent treatment can succeed in restoring natural breathing through the larynx. A few points which we specially noticed as regards intubation for chronic stenosis were:—1. The introduction of the tube. In dealing with acute inflammation any attempts to use force would be likely to end in disaster, but in cases of stricture a certain amount of force is absolutely necessary, and if it is used in the right direction may be safely employed. It is often requisite to press continuously the point of the tube against the contraction, and there may thus be a danger of causing asphyxia. It is a practical point of some moment to overcome the difficulty, and this can be done by withdrawing the introducer for a short distance, keeping the tube in place with the forefinger and so allowing a slight passage of air through the tube; pressure is then again applied and as a rule the stricture yields. 2. A much larger tube is required—and can be tolerated—than is laid down for the treatment of acute cases. 3. The length of time the tube can be left in is well shown in the third case, for the boy frequently wore his tube for a fortnight, and on two occasions did so at home without the slightest discomfort and without causing any alarm to his parents. 4. In all cases where the tube was expected to remain in for more than twelve hours the string was removed and the children were always much more comfortable without it. Intubation is invaluable as a help in the treatment of chronic stenosis, and O'Dwyer's tubes are undoubtedly the best adapted for the purpose. Intubation may also be of value in cases where the condition of acute obstruction is likely to be of short duration and where there is no reason to think that previous ulceration of the larynx existed. It may be of use also as a means of diagnosis when it is uncertain whether the dyspnœa arises from obstruction in the upper air passages or is due to some condition affecting the tubes lower down—e.g., pressure from a mediastinal tumour, bronchitis &c. Two interesting cases are reported by Dr. W. W. Ord in his paper on intubation in vol. xix. of the St. Thomas's Hospital Reports. The first of these two cases was that of a girl thirteen years of age, who was having chloroform administered at the Victoria Hospital for Children previously to tracheotomy being performed for pressure on the trachea by a sarcomatous growth. After a few inhalations she ceased to breathe. Intubation was performed and respiration returned. The administration of the chloroform was resumed and the tracheotomy, involving a long and tedious dissection, was successfully performed. The second case was that of a girl eleven months old, who was admitted to hospital suffering from dyspnœa, the result of supposed syphilitic laryngitis. Intubation was performed with marked relief and mercurial treatment was employed. It was necessary to use the intubation tube for four weeks, during part of which time there was crepitation in the upper part of the right lung; this, however, improved rapidly notwithstanding that the tube remained *in situ*.

(To be concluded.)

OPEN SPACES.—A new recreation-ground was opened this week for the benefit of the residents of Shoreditch. The area is not large, being less than an acre in extent, but as a breathing space for the denizens of that over-populated district will, no doubt, be highly appreciated. The total cost, about £5000, has been borne chiefly by the London County Council and the Shoreditch Vestry, Mr. A. J. Scott contributing £300 to the required sum. The Earl of Meath officiated as master of the ceremonies.

EXTRA-MENINGEAL OR SUBCRANIAL HÆMORRHAGE:

WITH THE REPORT OF A SUCCESSFUL OPERATION.

BY ARCHIE T. COLLUM, F.R.C.S. ENG.,
SURGICAL REGISTRAR AND DEMONSTRATOR OF SURGERY AT CHARING-CROSS HOSPITAL.

So seldom do cases of head injury present themselves with definite symptoms of any one lesion, especially such as may be successfully treated by operation, that I feel sure the following case of meningeal hæmorrhage will prove to be instructive in many ways. The present case may be looked upon as being a fairly typical example, inasmuch as the symptoms corresponded closely with the descriptions given in the text-books of the injury and rendered easy a correct diagnosis. In the first place, there was the period of concussion, though it was only momentary; secondly, there was the conscious interval of five hours; and lastly, there was the period of rapidly increasing compression, commencing with drowsiness or stupor and gradually deepening into semi-unconsciousness, when the surgeon's skill prevented what would have been almost certain death. It was interesting to watch the pulse become slower and slower as intracranial pressure increased; it was 90 on admission, 72 in five hours' time, and it was 64 two hours later. Another point of interest was that, notwithstanding the presence of a compound depressed fracture, the ruptured artery beneath remained undiagnosed until unilateral symptoms showed themselves, so completely did the clotted blood prevent leakage from between the fragments. The presence of paralysis on one side of the body and of eye symptoms on the other side would have sufficiently indicated the side of the lesion in the absence of a scalp wound, and whilst the rapid supervention of compression pointed to hæmorrhage as being its cause the short concussion period and the absence of previous "cortical spasms" suggested that the brain was uninjured and at the same time localised the blood to the subcranial situation. Unfortunately for the surgeon, in meningeal hæmorrhage, as in most other surgical disorders, the symptoms are not always so straightforward as in the case which is described below, and it is well that he should be on his guard for such "atypical cases." For the sake of convenience these may be divided into two groups. The first group comprises those in which the violence has been so slight that no concussion has resulted or at most only a momentary dizziness, as in the unfortunate case that cast a gloom over one of our public schools last summer, when a scholar, on his way to the wicket in a cricket match, was struck on the head by a passing ball. The blow knocked him down, but he rose immediately and proceeded to the wicket, and he was much disappointed when he was not allowed to "take his innings." He vomited soon after his return to the pavilion and died with hemiplegia five hours later. Mr. Erichsen[1] has described two very similar cases, both of which ended fatally, the symptoms developing during what was apparently natural sleep. The second group of atypical cases comprises those in which the violence has been severe, and here compression supervenes on concussion without the intermediary period of lucidity, as in the second of Mr. Croft's[2] successful cases. In this latter class, however, if careful watch has been kept, a period of partial recovery though not of consciousness may sometimes be recognised. Mr. Jacobson[3] found that the intermediary conscious interval was absent in one-third of the cases which were collected by him in which a reliable history on the point was to be obtained. In the latter group of cases one would suspect that, excluding the possibility of alcoholism, either severe contusion or laceration of the brain coexisted with the hæmorrhage, or else that a large vessel had given way, with a consequent profuse and sudden extravasation, the brain not being allowed time enough to accustom itself to the foreign element. In the more typical cases in which the smaller meningeal branches are wounded the collection on the surface increases slowly, allowing the brain time to adapt itself to the altered circumstances. As little by little the

[1] Lectures on Injuries of the Head, THE LANCET, vol. i. 1878, page 1.
[2] THE LANCET, vol. i. 1889, page 117.
[3] Guy's Hospital Reports, 1885.

blood is effused, so a corresponding quantity of the natural cranial contents, otherwise the cerebro-spinal fluid, is displaced from the ventricles into the spinal canal to make room for it; and by this safety-valve action intra-cranial pressure is kept at its normal level and the patient, having recovered from the effects of the blow, presents no symptoms. A time comes, however, when the pressure in the spinal canal has reached its maximum and no further displacement is possible; then, and not till then, does intra-cranial pressure mount up, with the result that the capillaries are pressed upon, the circulation through them is impeded, the delicate cortical cells are ill-nourished and drowsiness supervenes, which, if it be not relieved, soon passes into coma. To pursue this matter a stage further, the increasing pressure, having had its effect upon the cortical capillaries, next affects in turn the veins and arteries, and the cerebral circulation comes to a standstill; meanwhile, the centres in the medulla, vaso-motor, vagus and respiratory are stimulated by anæmia, and there are to be seen the full, hard and slow pulse typical of well-marked compression and the slow, deep breathing. Later still these centres are paralysed from malnutrition and the pulse becomes correspondingly small, rapid and irregular, and the respiration shallow and frequent, terminating in typical Cheyne-Stokes breathing. The conscious interval has varied in reported cases for from fifteen minutes to four or six hours; but, according to Dr. Weiseman of Zurich,[4] it may be as long as eleven days, and during this time patients have been known to walk many miles and to perform many of their ordinary duties of life. With regard to the mechanism of meningeal hæmorrhage it has been taught, by the experiments of Sir Charles Bell on the cadaver, that the sequence of events is: firstly, a separation of the dura mater from the skull, the result of the blow on the head; and, secondly, the distension of the cavity so formed by blood effused from the ruptured vessel—that the dura mater is not primarily detached by blood pressure and that the collection between the skull and its internal periosteum would not exist unless detachment had preceded it. He has, moreover, demonstrated that such a subcranial hæmorrhage may be present in the absence of a rupture of the meningeal artery, the blood in these cases (excluding ruptured sinus) being derived from smaller branches running between the dura mater and the bone, which are of necessity torn at the time separation takes place; or it may come from the vessels of the diploe when fracture exists. The onset of coma in these cases is postponed. In one or two of sixty fatal cases, according to Mr. Jacobson,[5] no laceration of the artery was found. In twenty-six of thirty-one cases of subcranial hæmorrhage which were collected by M. Gérard Marchant of Paris[6] the middle meningeal was the vessel wounded, and in by far the majority of cases its anterior division or branches, as was the case in this instance; but less commonly the main trunk (as in Mr. Symonds' case[7]) or the posterior branch (Mr. Bellamy's case[8]) gives way, and Mr. Godlee has described a case originating in the meningeal vein. In sixty-two of seventy cases which were reported by Mr. Jacobson[9] a fracture was found, the fracture being depressed or fissured, simple or compound, and localised to a small area of the vault or running down to the base across the line of the artery or its branches. The inner table may alone be splintered, whilst the outer remains sound (Mr. Edwards' case)[10]; or there may be no fracture at all, as in two fatal cases recorded by Mr. Erichsen[11] and in one which recovered recorded by Mr. Croft,[12] thus indicating how slight a violence may start the fatal hæmorrhage. Usually there is a bruise to indicate the point struck and there is commonly also a fulness in the temporal fossa, due to local hæmatoma or to filtration of blood between the fragments, the superficial ecchymosis tending to increase in the latter case but not in the former. Should the case be seen for the first time in a late stage, when unilateral symptoms are lost in general coma, the side to explore will be the one where bruising is to be found, for the hæmorrhage is almost always beneath the point struck, and it is but rarely on the opposite side (Bergmann and Watson[13]). In two very exceptional cases under the care of Mr. Hill of Dumfries, and referred to by Mr. Jacobson,[14] a lesion on each side of the brain was found and was successfully treated by operation.

Hemiplegia in meningeal extravasation is of course due to pressure exerted on the motor area. In the medical text-books it is taught that facial paralysis, when it is due to an upper segment lesion—i.e., somewhere between the cortex and the facial centre in the pons Varolii,—is rarely complete, and that whilst the lower parts of the face are motionless the muscles of the forehead and around the eye continue to act in association with their fellows on the opposite side; whereas in a lower segment lesion—i.e., below the pontine nucleus—the resulting paralysis is complete. The latter view no doubt is correct if the whole nerve is divided; but, in opposition to the generally received doctrine in the case of an upper segment lesion, a perusal of the physical signs in the case described below will show that there was loss of control over all muscles on one side of the face, and in confirmation I may mention the case of a man aged sixty-one whom I had under treatment two years ago for cerebral apoplexy with complete left-sided paralysis; when conscious this man was unable to close one eye or to wrinkle one side of the forehead, but these muscles were the first to recover. It would seem, therefore, that too much reliance should not be placed on the presence or otherwise of total facial hemiplegia, *per se*, in making a regional diagnosis in the facial tract. Before general coma sets in the condition of the pupil on the same side as the lesion is important, being first contracted and afterwards dilated, which are due respectively to irritation and paralysis of the third nerve. This is accounted for in two ways—firstly, from direct compression on the nerve, either from the clot spreading to the base of the brain (Hutchinson),[15] or from implication in a fracture running into the middle fossa; and, secondly, from compression at a distance, as in cases where the blood has not passed down to the base. In the present case the contracted pupil is apparently explained by the latter theory, since the dura mater had been stripped only to a certain level, and on removal of the clot the pupil at once recovered. The presence of anæsthesia is attributed by Dr. Weiseman to an extension of the hæmorrhage backwards behind the motor area, and, as will be seen in the case here alluded to, sensibility to pain was absent on the paralysed side. At the operation I had the satisfaction of corroborating Dr. Weiseman's statement, the cavity extending "in a direction downwards and backwards, reaching nearly to the tentorium." On the other hand, aphasia points, according to the same authority, to an extension forwards, whilst paralysis of the third nerve is attributable to an extension downwards towards the base (Hutchinson); but for this I have offered another explanation. Mr. W. H. Battle,[16] in his lectures on "Injuries to the Head" at the Royal College of Surgeons, touched on the subject of meningeal hæmorrhage in reference to the high temperature which is present in some cases, and concluded by saying "that if there is an excessive rise of temperature in a patient the subject of intra-cranial hæmorrhage there is a strong probability that the hæmorrhage is subdural, or, if subcranial, that there is a concomitant laceration of the brain." The absence of fever in our patient, both before and after operation, would seem to corroborate Mr. Battle's statement. Doubtless operation should be performed and the clot removed as early as possible, for fear of permanent damage to the motor area. In the present case, had circumstances permitted, in accordance with the time-honoured rule of surgery the compound depressed fracture would have at once been explored, and although separation of the dura mater might have been found the cavity would not have been distended and the patient would have escaped the risks he was put to from compression being allowed to intervene, as in some cases the brain does not expand even after very short periods of compression. Happily, however, delay was attended by no bad result. An equally good result was obtained by Mr. Davies Colley[17] in a man whom he trephined on the eleventh day. After removal of the clot there seems sometimes to be great difficulty in securing the wounded vessel. The dura mater, when intact, is so tense that it is next to impossible to pick up a vessel on it, much less to apply a ligature to such a vessel

[4] Deutsche Zeitschrift für Chirurgie, 1885; Annals of Surgery, December, 1885.
[5] Guy's Hospital Reports, 1885.
[6] Revue Mensuelle, April, 1880; London Medical Record, 1880, p. 216.
[7] Transactions of the Clinical Society, 1886.
[8] THE LANCET, vol. i. 1889, p. 1187.
[9] Guy's Hospital Reports, 1885.
[10] Edinburgh Medical Journal, vol. ii. 1862.
[11] THE LANCET, vol. i. 1878, p. 1.
[12] THE LANCET, vol. i. 1889, p. 117.
[13] THE LANCET, vol. ii. 1856.
[14] Guy's Hospital Reports, 1885.
[15] London Hospital Reports, vol. iv., 1867.
[16] THE LANCET, vol. ii. 1890, p. 1.
[17] Transactions of the Medical Society, 1888.

if it be secured; or the bleeding point may be so near the base that it is inaccessible from above. The method which was adopted here of underrunning the vessels *in situ* with fine catgut, as was recommended by Mr. Victor Horsley, previously to opening the dura mater in operations on the brain, proved to be most successful. Various plans have been resorted to by surgeons—viz., placing the patient in a sitting posture and applying ice to the head, neck and face (Beck); pressure by suturing down the edges of the wound and compression of the common carotid (Howse). Mr. Swain[18] used the cautery with success and Mr. Croft[19] in one case placed sponges within the skull. Mr. Symonds[20] could not tie the vessel, but managed to secure it with clamp forceps and, giving them half a turn, left them in the wound. In the case of an artery which was wounded whilst in its bony canal Mr. Wallis[21] employed an ivory peg, as did Mr. H. Marsh in a case of bleeding posterior palatine artery, though probably antiseptic wax would now be requisitioned as being more convenient. In some cases Mr. Howse has been compelled to ligate the external and Dr. Liddell to ligate the common carotid. Cases are very rare of successful trephining for middle meningeal hæmorrhage. Mr. Jacobson[22] succeeded in finding records of thirteen cases in the last 150 years. The list does not include Mr. Croft's[23] first case in the pre-aseptic days—viz., 1857. Others have also been published during the last eight years—viz, by Mr. Croft[24] in 1887, by Mr. Calder[25] of Leith in 1889, by Mr. Davies Colley[26] in 1887 and by Mr. Wallis[27] in 1892. These cases, together with Mr. Stanley Boyd's case, which is here reported, make an aggregate of nineteen cases in all.

A man aged thirty-seven, of sturdy build, was admitted to Charing-cross Hospital under the care of Mr. Stanley Boyd for compound depressed fracture of the skull at about 10.45 A.M. on July 27th of this year. He had been engaged in repairing a printing machine which was in motion, and he was in the act of lifting off an iron frame that guarded the strap running on the wheel of the machine when the strap caught the frame and, carrying it up, struck him a blow on the right side of the head, at the same time felling him to the ground. His fellow workmen found him in an insensible condition and immediately brought him to the hospital, which was within two minutes' walk of the place where the accident occurred. On the road the man recovered his senses and when seen by the house surgeon on his arrival was quite conscious, being seated in a chair, and talking freely and sensibly. The pulse was 90, the respiration was normal and there was no collapse. He was bleeding from a fairly clean-cut gaping wound two inches long and running obliquely across the right side of the head downwards and backwards, the centre of the wound being vertically over the pinna and four inches above Reid's base line. The wound penetrated all the layers of the scalp, exposing a fracture corresponding in direction and extent to the superficial wound. An elongated piece of bone had been driven bodily inwards by the blow. A little blood escaped through the fracture. The wound was dressed antiseptically and the man was admitted as an in-patient; he walked to the top ward and went to bed without assistance. An hour later he felt so well that he was with difficulty persuaded to stay in the hospital. He was given a dose of calomel and some milk. Between 3 P.M. and 4.30 P.M. he vomited twice and about the same time his general condition commenced to change—i.e., five hours after the accident. He became drowsy and stupid, only answering questions when he was "shouted at," and his articulation was so indistinct that he could not be understood; he assumed an irritable condition, resented any disturbance, keeping his eyelids closed and resisting all attempts to open them equally on the two sides, and would not protrude his tongue when he was desired to do so. At this time there was no paralysis; the pulse, which had been 90 on admission, had fallen to 72, and it was slightly irregular, but not full or bounding. Henceforward the drowsiness gradually deepened and at 5 P.M. he was semi-conscious. He lay on his back quiet and motionless, breathing with some stertor, the pulse having still further slowed and beating 64 to the minute; it was irregular as before and not bounding. The temperature was 98·2° F. There was paralysis of the left side of the body, which was partial in the leg but complete in the arm and face, including the orbicularis palpebrarum and frontalis; analgesia was also present. All movements on the right side of the body were strong and sensation was unimpaired; both knee-jerks were present and there was a tendency to ankle-clonus on each side. The right pupil was smaller than the left, and both reacted to light, but were sluggish; there were no strabismus, proptosis or conjunctival congestion. The patient had micturated in bed, but the bowels had not acted. In short, he had hemiplegia on the side opposite to the head injury and a contracted pupil on the same side, with a pulse that had fallen from 90 on admission to 72 and then to 64 to the minute. The dressings were removed and the head was shaved preparatorily to operation. The wound was dry and no blood oozed from between the fragments; in the front part of the temporal fossa there was a fulness which was obviously due to local hæmatoma. At 7.15 P.M. Mr. Stanley Boyd saw the case and the patient was at once removed to the operating theatre. An anæsthetic was necessary and chloroform was lightly given. The obliquely-placed scalp wound was extended at its upper end forwards and downwards so as to turn down a semilunar flap, a second incision being made from the same point upwards and backwards, a triradiate wound resulting, with each limb one inch and a half long. The depressed fragment was found to be locked and could not be extracted, but there were no fissures radiating from it. A three-quarter-inch trephine was applied with its pin on fixed bone immediately above the fracture, the trephine overlapping the depressed portion. The incomplete button was removed. On its under surface there were no meningeal impressions. The depressed fragment was now lying loose and it was lifted out; it consisted of both tables of the skull bevelled all round at the expense of the outer; a couple of loose splinters from the inner table were also removed. The under surface of the large fragment presented shallow grooves for terminal branches of the meningeal artery running upwards and backwards across the fragment. A dark clot of blood now presented; it did not pulsate. It separated the dura mater widely from the bone, chiefly in a direction downwards and backwards, reaching nearly to the tentorium, opposite to the parietal eminence; they were separated to the extent of an inch and a quarter. The clot to the amount of a teacupful was removed by means of a large Volkmann's spoon and irrigation. A search was next made for bleeding points, the lower part of the cavity being packed with gauze whilst the upper part was examined. Immediately beneath the depressed fracture two bleeding points were found, the upper one consisting of an incomplete tear of the dura mater from which arterial blood was gently oozing, the other being a small pumping vessel. No actual perforation of the dura mater was to be found. Several attempts were made to clamp the vessel, but they all failed. Three catgut ligatures were then passed in the line of the artery, including the whole thickness of the dura mater together with the vessel. The tear was also closed with catgut sutures which were introduced by means of Hagedorn's holder and a fully curved needle; by this means the bleeding was successfully stayed. The brain had already expanded appreciably, so that on removing the temporary plug the cavity was considerably smaller; this was then cleaned out thoroughly with a 1 in 500 perchloride solution, and as there was still a very slight amount of blood welling up from below, the source of which could not be found, it was thought to be advisable to insert a strip of iodoform gauze to act as a drain. The bone which had been removed was not replaced. The wound was closed with continuous horsehair stitches except at the anterior angle, where the gauze was brought out; a few stitches were here placed in position, to be tightened up on its removal. Sal alembroth dressings were applied. The patient had been allowed to recover partially from the anæsthetic towards the end of the operation, and it was at once noticeable that he had regained much power in the paralysed leg and that the pupils were of equal size. He was put to bed in the sitting posture and was given a drop of croton oil. He vomited once in the night, and on the dressings being found to be blood-stained they were packed. At 1 A.M. (four hours and a half after the operation) the house surgeon made a note to the effect that the patient was sensible and answered questions when spoken to. He was still drowsy and irritable, but he could move his left arm and leg freely. The pupils were equal and reacted quickly, the

[18] Brit. Med. Jour., vol. ii. 1885.
[19] THE LANCET, vol. i. 1890, p. 117.
[20] Transactions of the Clinical Society, 1893.
[21] Ibid., 1893.
[22] Guy's Hospital Reports, 1885.
[23] Medical Times and Gazette, vol. ii. 1857, p. 500.
[24] THE LANCET, vol. i. 1890, p. 117.
[25] Brit. Med. Jour., vol. i. 1889.
[26] Transactions of the Medical Society, 1888.
[27] Transactions of the Clinical Society, 1893.

pulse was 108 and still irregular, and the temperature was 100° F. The subsequent course of the case may be summed up in a few lines, as the patient made a rapid and perfect recovery and never had a bad symptom. He was dressed seventeen hours after the operation to remove the drain; it was moist but had ceased to act, and the skin wound looked well and pulsated freely; after removal of the drain the stitches, which had been previously set in position, were tightened. At the second dressing, on the eighth day, the wound was found to be healed throughout and all the stitches were removed. On the twelfth day nothing but a pad of wool, which was fixed by strapping, was applied. He passed urine voluntarily from the first; on the day following the operation it contained a trace of albumen and a fair amount of sugar. All paresis of the arm and leg had disappeared in twelve hours, but some weakness remained in the lower facial muscles for several days. The temperature was normal in thirty-six hours. On the fourth day he was sitting up in bed reading the newspaper and he was most anxious to get up; on the next day he removed the bandages but not the dressings, as the former appeared to him to be tight; this, fortunately, did not delay the healing process. For some days his memory was defective and when questioned he did not know what he had taken for dinner and could be made to say almost anything. He got up on the twelfth day and left the hospital on the 19th.

My thanks are due to Mr. Stanley Boyd for kindly permitting me to publish this case.

EXTRACTION BY LAPAROTOMY FROM THE HUMAN BLADDER OF THE LARGEST STONE EVER RECORDED AS SUCCESSFULLY REMOVED.

BY HERBERT M. N. MILTON, M.R.C.S. ENG.

THE extraction of large stones from the human bladder is comparatively frequent in Egypt, 2 oz. to 4 oz. being a not uncommon weight, whilst my collection, consisting of some 158 stones, contains six over that limit, weighing respectively 14 oz., 5½ oz., 4½ oz., 6 oz., 34½ oz. and 7 oz. The stone which forms the subject of this notice is large even for Egypt, and it is more especially noteworthy from the fact that it is one of the largest, if not the largest, that has ever been successfully removed. Before it can claim this latter title two points have to be decided: firstly, has a larger stone ever been successfully removed; and, secondly, can the removal be regarded in this instance as being successful? With regard to the first point, I find in "Ashurst's International Encyclopædia of Surgery" (1886) that, although stones of 40½ oz. (Uytterhoeven), 31 oz. (Deguise), 22 oz. (Ortellius) and 32 oz. (Després) have been removed from the living subject, the operation has been in each case fatal. It is stated further that the largest stone which has ever been removed successfully from the bladder of which any record could be found was one of over 20 oz., which was removed after fragmentation by Dunlap of Springfield, Ohio. The stone referred to in the present notice weighed one hour after its removal 995 grammes (equal to nearly 34½ oz.). I have consulted all the surgical works at my disposal and I have failed to find any higher record, and it is with the object of settling this point that I have headed this notice with its somewhat assuming title. With regard to the second point, the success of the operation may be considered to be open to criticism from the fact that the patient died in hospital from kidney disease, and that at the time of his death he still had a urinary fistula, the result of the operation. Taking into consideration, however, that death took place two months and a half after operation, that during this period lithotomy was performed a second time for a new stone of renal origin, and that between the period of this second lithotomy and the time when the kidneys finally failed the patient had a distinct period of convalescence and that he was about in the garden of the hospital, it may be claimed that, although the operation failed to cure the incurable secondary changes in the kidney, which resulted from the prolonged presence of the stone, the stone itself was successfully removed.

A word as to the operation performed. Duchastelet, one of Guyon's pupils, has, I find, proposed to always open the bladder upon its serous surface when operating for removal of stone above the pubis, and Villeneuve is inclined to approve this proposition as a possible future advance for the high operation. As far as I know, however, this is the first occasion that laparotomy had been previously decided on and deliberately carried out for the removal of a stone in the bladder.

The patient was an Egyptian fellah aged about sixty, who had, according to his own account, suffered from symptoms of stone for four years and from complete incontinence of urine for two years. It must be remembered, however, that the fellaheen have no recollection of the years as they pass, and forty years might be as correct an estimate of the existence of this stone as four years. A mass could be felt extending from the prostate to the umbilicus, and a very loud click was evident on sounding. The urine was alkaline and ammoniacal, its specific gravity being 1018; it contained mucus, blood, pus, one-fourth albumen, cylinders and bilharzia eggs. The patient was much exhausted; he was almost bedridden and had complete incontinence of urine. The stone was evidently extremely large, and it seemed to be impossible that it could be removed without an opening being made in the bladder of such a size as to make a lesion of the peritoneum a certainty. It was decided, therefore, that it would be safer to open the peritoneum at the beginning of the operation and to take all necessary precautions to avoid its infection—in other words, to perform a laparotomy. The patient was chloroformed, and after the usual precautions to ensure asepsis had been taken an incision was made through the abdominal wall from the pubes to the umbilicus, exposing in the lower part of the wound the anterior surface of the bladder, in the middle part the fold of the peritoneum, and in the upper part the continuation of this membrane to the umbilicus. A small incision was then made into the bladder extra-peritoneally, so as to be quite sure that the mass was not composed of several calculi, and also to permit of the cleansing of the bladder cavity with a boracic solution. The peritoneal fold was next picked up and an endeavour was made to detach the peritoneum from the upper surface of the bladder without opening the serous cavity. This was found to be an impossibility owing to the drag caused by the lateral false ligaments of the bladder, and the peritoneum was incised from the bladder to the umbilicus. The lower end of this incision was prolonged for about two inches backwards on the summit of the bladder until its posterior limit was reached. This incision was made little by little, the peritoneum being dissected from the bladder and dragged slightly forward before being incised, so as to obviate any danger of the contents of the bladder soiling its serous surface. As soon as the peritoneum had been sufficiently opened its general cavity was shut off with plugs of sterilised gauze. The bladder was now incised to the whole extent of its anterior and superior surfaces, and the stone was exposed. No grasp of it could be obtained with any forceps and pressure from below with two fingers in the rectum failed until two lateral incisions of the bladder wall had afforded increased space and allowed of easy delivery. The bladder was now thoroughly cleansed with a boracic solution, the peritoneum being closed with catgut sutures, the bladder with silkworm gut sutures and the abdominal incision with silver wire sutures. A sufficient opening was left in the abdominal and vesical walls for a syphon drain, which reached to the post-prostatic pouch. The patient had a very severe struggle for existence during the first eight days after the operation. His kidneys failed to act, the urine sinking in quantity to 10 oz. on the fifth day, and his pulse rising to 150, with persistent subnormal temperature. There was, however, absolutely no peritoneal reaction, and large doses of diuretine, quantities of hot and cold water, renal cupping and poultices, brandy, strong soup and essence of beef, together with excellent nursing, eventually pulled the patient through. On the sixth day, as the syphon was clogged and would not act, a perineal puncture was made into the bladder. On the thirty-fifth day, the patient having presented signs of another calculus, the perineal wound, which had closed, was reopened and a uric acid stone of 1½ grammes was removed. After removal of this second stone the patient's condition improved, but as no power of expulsion was regained by the bladder the perineal and supra-pubic fistulæ had to be occasionally, one or the other, reopened. The patient ate well, slept well and went into the garden, but he never really increased in weight. Two months after his first operation he began to sink and

in spite of every care he died ten days later. For the last five days of his life he ate, in addition to his ordinary food, one or two raw kidneys

Necropsy.—The bladder was very contracted and thickened, but otherwise it was healthy. The peritoneum showed no trace of surgical interference. Both kidneys showed advanced nephritis apostomatosa. There were bilharzia worms. The cause of death was nephritis apostomatosa chronica. The stone weighed nearly 34½ oz.; its largest diameters were 4 in. and 6 in. The outer layers were composed of magnesian phosphates, but no examination of the inner layer has been made, as the stone has been presented uncut to the museum of the Royal College of Surgeons of England.

Kasr-el-Aini Hospital, Cairo.

A NOTE ON THE TREATMENT OF CHOLERA.

BY MAX F. SIMON, L.R.C.P. LOND., M.R.C.S. ENG.,
PRINCIPAL CIVIL MEDICAL OFFICER, STRAITS SETTLEMENTS.

IN March, 1882, I was led by certain considerations to try the effect of nitro-glycerine in averting death in the collapse of cholera, and in the first few cases in which I administered the drug the success which followed was, as has been so often the case with various cholera remedies, very remarkable. On subsequent occasions, however, when I tried the remedy a like success did not follow—that is, as regards the recovery of patients—though the usual effect on the pulse was always produced. I think that most practitioners who have seen anything of cholera will agree with me that the majority of deaths from it do not occur from collapse, but from a condition supervening on collapse. The patient may recover from the diarrhœa and from the collapse which follows it—in fact, his internal temperature may rise to normal or a little above it, and the urinary secretion may return to some extent, but on about the third day of his illness he will fall into a kind of torpid condition of mind, with injected conjunctivæ and possibly flushed face, and in a day or two he will die, often comatose, apparently from a condition simulating a passive form of pneumonia. This state is, I believe, said to be dependent on a condition of the blood called "tarry blood," which means, I take it, disorganisation of the red blood corpuscles, which become inefficient as carriers of oxygen. In collapse nitro-glycerine will restore the pulse and external temperature and, provided that the blood be in a sufficiently good state, the patient will probably recover; but if the blood be much altered, though temporary apparent improvement will follow each dose of nitro-glycerine, such improvement will be only temporary and apparent and the patient will certainly die. It is evident that to do good in these cases something more is needed, and it has occurred to me that if oxygen could in addition be supplied to the blood by artificial means a line of treatment might be laid down with a good prospect of success, and it seems to me that the desired end could be gained by intravenous injection. I have not had an opportunity of making any experiments in this connexion for some time; but I shall certainly do so should occasion arise, and I wish now to put forward for the consideration of any practitioners who have, or may have, opportunities of treating cases of cholera the line of treatment that I have indicated, and to suggest that probably the fluids best suited for the purpose of the intravenous injection will be found in solutions of permanganate or chlorate of potash, and especially the former of these substances.

During a former outbreak of cholera in England treatment by intravenous injection of saline solutions was extensively, and, I believe, with fair success, tried at the London Hospital, and it is to institutions where the staff is numerous that one must look for the trial of treatment which it takes considerable time and trouble to manage. In the East—except, perhaps, in some large cities or towns—in the event of an outbreak of cholera the practitioner on the spot generally finds his hands so full that he has barely time to superintend all the necessary arrangements and cannot, as a rule, prosecute any experimental inquiry without neglecting patients in other ways. The injections at the London Hospital were made, I believe, with the intention of replacing the volume of the blood and of supplying the lost salts, especially the chlorides, and it is possible that the success which resulted occurred in cases of simple collapse, without much blood deterioration. The cases which improved at first and afterwards proved fatal seem to point to this.

It is more than possible that some better means of supplying oxygen may be devised. I merely now suggest the methods that seems to me to point in the right direction. I would also ask whether there may not be some analogy between the condition (I believe "tarry") of the blood which follows the bites of certain snakes, in the treatment of which permanganate of potash has been found useful, and the condition of the blood which obtains in cholera. Nitro-glycerine may be given most conveniently by dropping two or three drops of a 1 per cent. solution of the drug in rectified spirit on the tongue and repeating as required, whilst noting the effect on the pulse, which should show itself in a few minutes. If the case is one that will do well one or two doses will probably be sufficient; if not, I have found that the supervention of headache after several doses indicates that the drug has acted to its utmost, and that it is useless to press it any further.

Some years ago, subsequently to 1882, attention was called in one of the medical journals to the employment of nitrite of amyl in cholera collapse. This, however, did not apparently give such success as it at first appeared to promise, probably for the same reason that nitro-glycerine alone did not always succeed.

Nitro-glycerine is now so commonly used and is so easily to be obtained that few dispensaries are without it, but in Singapore, in 1882, I had to make it, and as it is possible that others may be in a similar position it may be useful to publish the following easy and safe method of manufacture, which I took from "Watts' Dictionary of Chemistry." In a conical dispensing measure-glass mix half an ounce of pure nitric (free from nitrous) acid and one ounce of pure sulphuric acid; place the measure in a basin of water containing ice and so reduce the temperature of the mixture to between 60° and 70° F.; then pour in gradually two drachms of pure glycerine, stirring all the time, and taking care that the temperature does not rise above 78° F.[1] Oily drops will soon appear on the surface of the liquid, and when they have appeared and the glycerine is all poured in pour the whole, with constant stirring, into a large measure-glass containing about forty ounces of cold water. The nitro-glycerine sinks to the bottom and can be obtained by decanting the water; it must be washed in successive portions of water, shaking it up in each, until the water ceases to have an acid reaction. The last drops of water can be removed by a glass syringe; they should on no account be sucked up by a pipette, for if any of the drug gets into the mouth the headache that follows is most intense. The nitro-glycerine thus prepared, when precipitated, is in the form of heavy, oily looking, somewhat opalescent drops, which coalesce at the bottom of the water. It can be dissolved in one hundred times its bulk of rectified spirit and is then ready for use.

TOTAL SUPPRESSION OF URINE IN A PATIENT SEVENTY-FOUR YEARS OF AGE; NEPHROTOMY; RECOVERY.

BY JAMES W. FRASER, M.D., C.M. EDIN.,
AND
ALFRED PARKIN, M.S. LOND., F.R.C.S.

SUCCESSFUL cases of nephrotomy for complete anuria are so rarely met with that it seems to be worth while to record the following case.

A married woman aged seventy-four had enjoyed good health up to 1890, but in that and in the succeeding year she had a short illness the chief features of which were attacks of shivering, accompanied by a rise in temperature; there was no albuminuria or hæmaturia. Her confinements, seven in all, had not been severe, nor were they followed, so far as she could remember, by any inflammatory attacks. In June of this year she began to suffer from irregular micturition, on some days passing little or no urine and on others a large

[1] The best way to manage this is to stir with the thermometer if it is one that is graduated on the glass through a sufficient range of temperature; if the thermometer be an ordinary one in a wooden frame the wood below the 65° mark can be cut away.

quantity. She had at no time suffered from any pain in the loins, but her friends said that for the last year she had been noticed to walk with her hand on her left hip so as to support that side. On June 23rd she passed only a very small quantity of urine and she was sick in the evening. On the 24th she was seen by Dr. Fraser, who drew off about half an ounce of urine from the bladder; there was at this time a little pain in the left loin. Diuretic and diaphoretic treatment was adopted, with hot applications to the loins, but without any result, as the bladder remained empty and she gradually became more and more drowsy. When the patient was seen by Mr. Parkin on June 28th she was very drowsy, but she could be roused to answer questions in a feeble voice. She complained of feeling very weak. The tongue was furred but not dry, the temperature was normal, and the pulse was 84, full and strong. She had no twitchings or sickness, and no pain, but on deep pressure in the left loin there was decided tenderness. No tumour was to be felt in either loin, but the ribs were so close to the iliac crest that manipulation was very difficult. Per vaginam the atrophied uterus was drawn over to the left side by old cellulitis. No calculus was to be felt in the ureter and the bladder was quite empty. As the anuria had then (June 28th) lasted for five days it was decided to explore the left renal region, the few symptoms which were present indicating this side as being the affected one. The usual oblique incision was made after the patient had been anæsthetised by a mixture of ether and chloroform, which was given by Dr. Fraser. The kidney was found to be dark in colour and hard, as if distended, and it was estimated to be about eight inches in length. When it was incised along the dorsal border about six ounces of urine escaped, the last portion to come away being mixed with some pus. The pelvis on exploration by the finger was found to be enlarged, the pyramids were flattened, and the finger was only with difficulty worked into the ureter on account of the existence of a spur-like projection at its junction with the infundibulum. A flexible probe was passed gently down the ureter as far as the brim of the pelvis, but no stone could be felt, nor could calculus be detected by palpating the renal substance with the finger in the pelvis of the kidney. The bleeding from the wound of the kidney was very free, but it was easily controlled by a suture passed through the renal substance. A drainage-tube was inserted into the pelvis and brought out at the loin. The wound was rapidly sewn up with a continuous suture, and the collapse, which was considerable, treated by warmth and by the injection of a pint of hot water with a little brandy into the rectum. The progress of the patient was most satisfactory. The alarming symptoms—muscular prostration and drowsiness—disappeared in twenty-four hours; there was a most abundant excretion of urine from the loin, estimated by weighing the pads applied to the wound at over 40 oz. in the twenty-four hours, and the temperature only once rose above normal, on that occasion being 100° F. The wound healed by primary intention and the sutures were removed on the eighth day. About one ounce of urine was withdrawn from the bladder on the same day, and subsequently the patient on two occasions passed about two ounces herself. At the date of writing the bulk of the urine is passed through the lumbar sinus into a urinal. The patient is able to come downstairs and for her age is in a good state of health.

Remarks.—The symptoms in this case were typical of obstructive anuria as described by Sir William Roberts. The usual difficulty in such cases at once arose—viz., as to the side of the obstruction, and then came the question what had become of the other kidney—was it atrophied or was there reflex suppression, the kidney itself being healthy? The only symptoms were, firstly, a history of some old trouble in the left loin, which was evidenced by the patient supporting that side when walking; and, secondly, deep-seated tenderness in that loin on examination. There was very little evidence pointing to a renal calculus and there was no palpable tumour. In a condition so obscure, the fact that there was no symptom whatever of any affection of the right kidney was a strong argument in favour of there being something amiss with the left, and this view of the case was confirmed at the operation. The left kidney was distended and was undoubtedly hypertrophied, the cortex being at least an inch and a quarter in thickness, and this, with the subsequent course of the case, indicated that the right kidney was either absent or atrophic, but, if the latter, it was not possible to give any definite reason for the atrophy. There are two views to account for the anuria; firstly, that the left ureter had been gradually blocked by the contraction following the old pelvic cellulitis; and, secondly, that the left kidney had hypertrophied to compensate for the absence of the right, and that, as the surrounding fat had become absorbed through advancing age, it had first become mobile, then hydro-nephrotic to a slight extent, and finally that its ureter had become kinked at the infundibulum. This latter view seems to be the more probable one, and it is supported by the finding of a sort of spur at the operation. The dilatation of the renal pelvis and of the calices, with the flattening of the pyramids, indicated that the process of distension had been taking place for some time before the actual kinking of the ureter occurred. This case adds one more to the list of recoveries which have been recorded by Lucas, F. Lange, Bardenheur and Meyer, and it can only be said that an operation which can save a patient from certain death at the age of seventy-four is a most justifiable measure. Recovery with a lumbar fistula may be regarded by some as being undesirable, but a urinary fistula is surely preferable to an artificial anus, and in this case there is still a hope that the urine may ultimately pass down the ureter as the fistula gradually contracts.

Hull.

A CASE OF SARCOMA OF THE ORBIT.

BY W. J. COLLINS, M.D., M.S., B.SC. LOND, F.R.C.S.,
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A MARRIED MAN forty-eight years of age was admitted into the Royal Eye Hospital, Southwark, on March 10th of this year. His left eyeball was displaced upwards and outwards, and its movements were restricted—especially in an inward direction. There was a marked swelling below and to the inner side of the displaced globe, occupying an area of one inch by half an inch. It was softish, semi-elastic and non-fluctuating, and it was distinct from the maxillary margin of the orbit. The ocular conjunction over it was injected and chemosed; it was thrown into prominent folds and was apparently infiltrated. There was a second similar swelling above and to the inner side of the eyeball, lying just under the orbital margin of the frontal bone, and it measured three-quarters of an inch by a quarter of an inch. The conjunctiva over it was not altered, except for some injection. Neither swelling was tender, and at the time of admission they caused the patient no pain. There was epiphora, but there was no nasal obstruction or any depression of the palate. The temperature was normal. There was some impairment of vision and he was unable to read more than $\frac{6}{12}$, although with + 2·50 D sph. he could read J 1. The fellow eye read $\frac{6}{6}$. There was no syphilitic history or history of tumours in members of his family. He had always been a healthy man, but thought that he had lost flesh during the previous three or four months. The history he gave was that three months previously he began to suffer from pain over the left eyebrow, the pain increasing when he looked to the left. Three weeks before admission the left eye became red and he commenced to have epiphora, and a fortnight before the swelling appeared quite suddenly—in his own words, "coming on all at once"—and it had rapidly increased in size since. As the swelling appeared the pain left him. On March 14th, the patient being under A.C.E. mixture, I, to commence with, made an exploratory incision into the larger swelling and, finding it definitely of a solid nature, proceeded first to remove the eyeball and then to thoroughly clear out the orbit. The tumour appeared to grow from the region of the lacrymal sac. The floor and inner wall of the orbit were cleared with the elevator right down to the bone, special attention being paid to the inner canthus, and portions of the upper and lower eyelids were cut away. Chloride of zinc paste, made up with opium, was applied on lint, so as to act thoroughly upon the whole raw and bone surfaces. The pain after the operation was relieved by hypodermic injections of morphia. The chloride of zinc paste was removed on the third day. He was allowed to get up for a little while on the eighth day, having had no bad symptoms. The temperature did not rise above 100·4° F. on the three days after the operation, and since then it had been normal. The paste caused, as usual, a certain amount of sloughing of the soft parts around. The dressing consisted of dry cyanide gauze, which was dusted with iodoform, and salicylic wool; and the orbit was gently

irrigated with a 1 in 60 carbolic solution. Later, when the greater part of the sloughs had come away, the surface was dressed with cyanide ointment, under which healing at the margins took place very well. His weight was periodically taken and showed a gradual and steady increase until June 21st. The lacrymal bone and the os planum of the ethmoid had come away at this date, but not the orbital

FIG. 1.

Before operation.

plate of the superior maxilla. There is no evidence of any recurrence and the patient is in a very good state of health. Microscopical examination showed the tumour to be a round-celled sarcoma. The conjunctiva was infiltrated, but the eyeball was unaffected.

Remarks.—The case was one of extra-ocular intra-orbital

FIG. 2.

After operation.

sarcoma. It was round-celled and was growing rapidly, though it had not when it was seen invaded any neighbouring cavity. The originating tissue is doubtful. It may have been the orbital connective tissue, as has been described by Virchow in many cases, or the periosteum in the neighbourhood of the lacrymal groove. The complete evacuation of the orbit down to the bones composing it was effected by strong blunt-pointed scissors and an elevator. It was thought to be unwise to attempt to preserve any conjunctiva and it was practically impossible with an adequate use of caustic to save the lids in such cases. The notes of the case and the photographs were taken by Mr. L. V. Cargill, house surgeon.

P.S.—Since writing the above I have had a case very similar to this at the London Temperance Hospital in a girl aged fifteen. It had a history of three months' growth, and an excised portion showed round-celled sarcoma. I evacuated the orbit in a similar manner, but managed to save the eyelids by wrapping them in lint well greased with iodoform ointment. There is anæsthesia over the supra-orbital and supra-maxillary regions. The temperature has not been above 100° F.

CASE OF ACUTE INTESTINAL ABSCESS; LAPAROTOMY; RECOVERY.

BY BRIGADE-SURGEON ALFRED F. S. CLARKE, M.D. ST. AND., M.R.C.S. ENG.,
SURGEON, ROYAL MILITARY COLLEGE, SANDHURST.

A CADET aged twenty was admitted into the Royal Military College Hospital on Feb. 24th of this year, suffering from severe and sudden pain in the abdomen, with a certain amount of shock. He had been quite well until noon that day, when at Fortification drill he lifted a heavy weight and felt he had somehow strained himself. Pain came on almost at once; in a few hours he was unable to move and he was conveyed on a stretcher to the hospital. He vomited twice during the evening and was thirsty, his pulse being 100 and the temperature 98·6°F. He complained of difficulty of breathing, and referred the pain chiefly to the right iliac region. Fomentations with turpentine were applied and he was given beef-tea, milk and ice and a hypodermic injection of morphine at 9 P.M. He was a strong and active lad, fond of athletics and swimming, and had previously enjoyed excellent health. Eighteen months ago he had a slight attack of peritonitis at school caused by a "strain" at football, from which, however, he completely recovered. For the next three days his symptoms pointed to intestinal obstruction with some general peritonitis. The temperature rose to 100·2° F., the pulse quickened, the tongue became dry and coated, he vomited four or five times in the twenty-four hours, the abdomen became rigid, tense and distended, and there was no action of the bowels in spite of enemas of warm water with olive and castor oil. The abdominal pain continued to be as severe as it was on admission. He was given small quantities of iced milk or beef-tea, and morphine was injected night and morning. On the 27th he passed a large clay-coloured motion and the symptoms improved. On the 28th a dose of calomel and colocynth was followed by three actions, and a general improvement in all the symptoms took place. On March 6th he was not so well, the vomiting returned, the abdomen became distended, painful and tympanitic, the bowels did not act, and an enema given by a long tube had no effect; he was losing strength and becoming restless and hectic. By the evening of the 7th Surgeon-Major Stock and myself agreed that a laparotomy would be advisable, and Mr. Bruce-Clarke was summoned and kindly came at once. He concurred in the advisability of an abdominal section, and at 3 P.M. he performed laparotomy in the middle line, the patient being anæsthetised with the A.C.E. mixture. After the peritoneum was opened very offensive pus in considerable quantity was found on the right side; the intestines were much matted together, the portion exposed being of a dark red colour. Free irrigation of hot water at a temperature of 105° F. was employed, several gallons being injected with a syphon tube. Pus was found in two or three places. The intestine was opened and stitched to the peritoneum and skin, forming an artificial anus; a small rubber tube was inserted. A second and smaller opening was made on the right side and a glass tube was introduced. Iodoform and carbolic gauze and wool were applied to the wound, from which some flatus and a little fæcal matter escaped. Morphine (one-third of a grain) was injected, all food was withheld and three ounces of hot water were given in teaspoonful doses for the first twenty-four hours. He slept well, the temperature fell during the next day to 98·4° F., thin fæcal matter flowed freely from the bowel wound, there were much

less pain and distension, and he was altogether more comfortable. A nutrient enema was given every four hours and hot water only by the mouth for forty-eight hours more. On the 11th the stitches were removed and he was allowed one ounce of milk with water every three hours, in addition to the nutrient enemas. Slow but steady improvement followed, a little pus occasionally escaping by the wound. On the 17th fæcal matter passed by the rectum and he was allowed eggs and light puddings. On the 19th a small collection of pus was evacuated from the smaller wound on the right side, which then quickly healed. On the 21st the bowels were acting regularly, whilst fæcal matter still flowed freely from the wound, which was contracting and granulating. The temperature was subnormal, the pulse was 74 and the patient was gaining strength daily. On the 26th he was allowed to get up and my note-book records: "Wound smaller, appetite good, bowels open daily with simple enema, fæcal discharge through wound much less, dressings changed only three times a day, walks out for half an hour and sits in the sun." On April 10th he had a sudden relapse; bilious vomiting set in with pain in the epigastrium, the bowels became constipated, and there was a slight rise of temperature, followed by a fall to 95·6° F., with a weak pulse of 62, and no fæcal matter escaped by the wound. These symptoms persisted in spite of active treatment till the 13th, when the vomit became stercoraceous and he had much hiccough. It was clear that some obstruction existed above the wound, due probably to some twisting of the gut. Mr. Bruce-Clarke, who saw the patient on the 13th, was of this opinion, and thought that a second operation would be necessary, but he decided to try warm water injections through a tube passed some distance into the wound whilst the patient was turned over from side to side and the abdomen was briskly massaged. These measures were successful; some fæcal matter through the wound followed, and in the evening there was an action per rectum. The abdominal pain ceased and the vomiting and hiccough disappeared. From this time the improvement was steady and continued. The wound closed, the bowels acted naturally, and the patient's strength increased daily. On the 22nd he was able to walk a mile and on the 24th he left the College for the seaside on sick leave. A month afterwards he was able to walk ten miles and was reported to be in general good health.

Remarks.—This case is one of considerable interest, illustrating the value of enterotomy as an aid to the evacuation of pus from the peritoneum. Before the operation the bowels were all but paralysed, and there was great reason to believe that the patient would sink from intestinal stasis. The immediate relief which the incision afforded was very marked. The intestines were too much matted together to allow of the exact cause of the abscess being made out; it seemed to be most probable, however, that a strain acting on a piece of adherent bowel had torn it and had caused some of its contents to become extravasated and so had given rise to the formation of pus.

CASE OF ACUTE INVERSION OF THE UTERUS.

BY W. R. ORR, M.D., M.CH., M.A.O. R.U.I.

THE extreme rarity of this accident—it having occurred but once in over 190,000 cases of labour in the Rotunda Hospital since 1745—and the fact that it has a bearing on the proposed registration of midwives constitute my apology for recording the case. On Aug. 15th I was hurriedly called to see a young woman aged twenty, who had just given birth to her first child. I arrived on the scene about an hour after delivery and found the patient in a state of great collapse and quite unconscious, the pulse being small and rapid, the skin cold and clammy and the breath coming in gasps. The midwife informed me that it was a case of "false conception"; whatever she meant by the phrase I cannot say. On examination I found the uterus completely inverted and beyond the vulva, with the placenta still adherent. The uterus was quite flaccid, and there had been but a small quantity of blood lost. I stripped off the placenta, a matter of little difficulty, and replaced the uterus with ease. The patient, however, died some two minutes afterwards, altogether about an hour after the accident. I think there can be no doubt as to the immediate cause of the accident. The woman had had a tiring day and was much fatigued when labour commenced. After the expulsion of the fœtus the midwife—according to her own account and that of a bystander—pulled strongly on the cord, and almost simultaneously the uterus and its contents were protruded. Here the primary cause seemed mechanical, but as there was a strong expulsive effort on the part of the patient it was probably assisted by muscular contraction. I think I am safe in saying that the presence of a medical man would have prevented the occurrence of such an accident.

Wanstead, N.E.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ROYAL FREE HOSPITAL.

CEREBRAL ABSCESS DUE TO OTITIS MEDIA; REMARKS.

(Under the care of Dr. SAINSBURY and Mr. ROUGHTON.)

THE relation between disease of the middle ear, with its bony annexes, the mastoid antrum and mastoid cells, and cerebral or head symptoms is well recognised and is sufficiently puzzling. The association of this disease with well-marked head symptoms, including optic neuritis, such as, apart from the ear disease, would unhesitatingly be ascribed to intra-cranial mischief is well-known. How far the symptoms are actually due to concurrent intra-cranial disease it is perhaps impossible to decide, but we are certainly familiar with the presence of the symptoms to a pronounced degree and with their complete and rapid subsidence on treatment of the bone disease only. For this reason it has been urged that in the above class of cases the minor operation of removal of the diseased bone in the walls of the middle ear and around it should be first performed and, in case of subsidence of the head symptoms not occurring, that the major operation of opening the skull should be then entertained. The following case suggests that it is best not to be too systematic in procedure, that each case should be treated on its own merits, and that perhaps the major operation should in some be performed at once.

A man aged fifty was admitted into the Wynn Ellis Ward of the Royal Free Hospital on Saturday, Aug. 12th of this year. The patient was sent in for the association of head symptoms with deafness of, and discharge from, the left ear. The family history had no bearing on the case. The personal history recorded a discharge from the left ear extending back to youth. At the age of thirty this seems to have ceased. The patient's habits were intemperate. On Saturday, Aug. 5th, he was exposed to a draught whilst travelling in a railway carriage. He seems to have noticed a slight deafness in the left ear the same day, and in the evening he vomited. On the 9th the deafness was noted as being worse, there was a complaint of pain in the ear, and in the afternoon of this day there was some discharge of blood from it. On the 10th there was less pain, but some discharge of matter. He consulted a medical practitioner on this day, and whilst at his house he had a convulsive fit. He seems to have recovered partially and was removed to his home, but there lapsed into an unconscious state, which lasted some hours. After recovery from this fit and during the next day he was distinctly not himself; his memory was bad, he could not find words and he described his feeling as being one of vacancy. At one time he appears to have been distinctly aphasic. After admission into hospital on the 12th his speech was noted as being thick, and the face on the right side as weak. The arms and legs were moved equally by the patient, the knee-jerks were absent on both sides, there were no sensory symptoms. On further examination the deafness in the left ear was found to depend on disease of the middle ear. At the time of the patient's admission there was moderate fever, the maximum temperature being 101·2° F. On the following day the temperature fell to normal and it remained so till the 18th. During this time there was decided

improvement in every respect. The ear was syringed daily with boracic lotion. On the 17th there was some return of pain in the ear and there was also some frontal headache. On the 18th the temperature rose to 100° F. and the frontal headache was exchanged for pain in the temporal region. On the 19th the temperature was 101° F.; the pupils were slightly unequal, the left being smaller than the right. At this stage Mr. Roughton was consulted. A granulation polypus was discovered by him, and he advised the operation of scraping. This was performed on the 23rd, but in the interval the patient became decidedly worse; he was more drowsy and was delirious at night. On the 22nd there was a return of the aphasia. At the operation Mr. Roughton found pus in the external meatus, but the mastoid antrum appeared to be healthy, and the mastoid process, though it was sclerosed, with practical obliteration of the cells, did not show any carious bone. The temperature had reached normal before the operation, but on the next day, with a deepening of the cerebral symptoms, it began to rise again. Unconsciousness was practically unbroken; there was vomiting once during the night and there were slight convulsive movements, beginning in the right arm, but affecting also in slight degree the right leg and the left arm. It was now determined to trephine over the temporal region, but the patient died the same evening, having become suddenly worse late in the afternoon. An attempt was made to take him into the operating theatre, but the end came too quickly. At the post-mortem examination the dura mater was found to be slightly raised over the roof of the tympanum. A large abscess involved and distended nearly the whole of the left temporo-sphenoidal lobe.

Remarks by Dr. SAINSBURY.—The comment upon this case is that the major operation ought to have been undertaken in the first instance; but upon what indications? Was the aphasia, in itself an unusual symptom, an indication of this kind? How was it produced? The suggestion was made before the operation that the aphasia might be produced by the pressure of an abscess in the temporo-sphenoidal lobe upon the convolution of Broca or upon the fibres leading from it, and the size of the abscess found at the necropsy and its probable tension make this not unlikely; but still, was this sufficient ground to go upon? Optic neuritis has not been mentioned, because there was some difference of opinion about it; in any case it must have been in the earliest stages and it did not exceed slight congestive swelling of the disc. It has been mentioned that the knee-jerks were absent on the patient's admission; of this there was no doubt, but on the 24th (the day of his death) they were found to be present.

DINORWIC QUARRIES HOSPITAL, LLANBERIS.

A CASE OF PHLEGMONOUS CELLULITIS OF FOREARM FOLLOWING AN INCISED WOUND OF THUMB; SECONDARY INFECTION OF KNEE-JOINT, LUNG AND THROAT; PYÆMIA (?); RECOVERY.

(Under the care of Mr. R. H. MILLS-ROBERTS.)

THE question as to whether the following case of septic infection was a true pyæmia or not will probably be answered differently according to the opinion held by our readers as to the meaning of that term. Clinically as regards symptoms it was not pyæmia, as Mr. Mills-Roberts points out; the temperature was not characteristic in its course, colliquative sweats were absent, there were no rigors from first to last and there was very little gastro-intestinal disturbance. Still the patient became rapidly emaciated, jaundiced, and there were suppuration in the knee-joint, evidence of lung inflammation, and glandular inflammation in the neck. We are inclined to ascribe the recovery of the knee-joint to the treatment, which was well adapted to the particular case and was not too long delayed, as so very much depends on the period at which the purulent contents of a joint are evacuated. Mr. Stephen Paget wrote an interesting paper which we published in THE LANCET[1] a few years ago on the Distribution of Pyæmic Abscesses, in which he came to the conclusion that the distribution of these abscesses was not haphazard, but was subject to certain rules and combinations. The parts affected were, however, not limited to one side of the body in any lesions, although after some injuries there was a greater tendency for certain viscera or systems to be involved.

A man aged thirty-eight was admitted into the Dinorwic Quarries Hospital on Oct. 3rd, 1892, with the following history. On the previous Saturday, whilst cutting bread, the knife slipped into the patient's thumb, making a small wound which was thought nothing of; he wrapped a piece of linen round it and went about as usual. Next day he complained of considerable throbbing pain in his thumb and applied a linseed poultice. On Monday (Oct. 3rd) he went to his work at 7.30 A.M. as usual, but returned home about 10 A.M. feeling very ill, shivering violently and complaining of great pain in his thumb. After reaching home he went to bed and applied another linseed poultice. On the following day he was seen by a medical man, who lanced his thumb, poultices being continued until the following Saturday, Oct. 8th, when he was seen by Mr. Mills-Roberts. He was then looking very ill; he had a sallow complexion, with a haggard and anxious expression, and he was delirious, but he answered questions rationally. His voice was husky and he complained of sore-throat, but there was nothing to be seen on examination beyond a little congestion of the fauces. His temperature was 104° F. and the pulse was 130. He was in great agony with his hand, which was much swollen, the swelling extending to the bend of the elbow. No distinct fluctuation could be found, but the whole forearm was tense and brawny. The axillary glands were swollen and tender. On the palmar aspect of the terminal phalanx of the thumb there was a small wound, from which a little pus oozed. He was recommended as an in-patient. After admission ether was administered and several deep and superficial incisions were made in the hand and forearm; a great deal of serum but very little pus escaped, the latter coming from a deep incision which was made along the palmar aspect of the thumb, and a counter-opening was made above the anterior annular ligament to the inner side of the radial artery, a director being easily passed between the latter incisions, and carbolic lotion was syringed through. Carbolic fomentations and poultices were afterwards applied. The temperature in the morning was 104° F., and in the evening it was 100° F. Next day (Oct. 9th) the following notes were taken: "Feels better. Hand is comfortable and swelling is much less. Still complains of sore-throat. On examination there is considerable congestion, most marked on the right side; there is also tenderness on pressure behind the right angle of the jaw. The appetite is very bad." The temperature in the morning was 100·6° F., and in the evening it was 103·6° F.—Oct. 10th: "Hand looks better; swelling diminishing; no tension. Throat is very painful. A few glands can be felt under the right angle of the jaw; they are very tender. Patient complains of pain behind the right knee-joint, but on examination no tender spot can be felt and there is no swelling." The temperature in the morning was 99° F., and in the evening it was 102·2° F.—Oct. 11th: "Hand and arm still improving. Throat is better. The right knee is very painful and tender to touch; tenderness is most marked in the popliteal space. There is no swelling or effusion into the joint. Patient is considerably thinner than he was on admission. He has a slight cough, but no expectoration." The temperature in the morning was 101° F., and in the evening it was 101·6° F.—Oct. 12th: "Hand and throat improving. There is a little effusion in the right knee-joint, but the pain is less and tenderness is not so marked." Later, at 8 P.M.: "Effusion is increasing; a syringe was introduced into the joint and about one drachm of slightly turbid, oily fluid withdrawn. Under the microscope there are numerous leucocytes to be seen, many of which are in a condition of granular, fatty degeneration. Patient's cough is worse. There is no expectoration and there are no abnormal physical signs. He is evidently wasting rapidly and is slightly jaundiced, with a flushed face. His pulse is 120, weak and irregular; it is inclined to run." The temperature in the morning was 100° F., and in the evening it was 102° F.—Oct. 13th: "Cough is worse. There is considerable frothy expectoration, with streaks of blood (first noticed about 8 A.M.), rapidly increasing in amount, until at 12 noon sputum is well mixed with blood. On auscultation a few crepitations are heard below the angle of the right scapula. Pain has disappeared from the throat and there is no visible congestion. Hand is looking well. Patient is much more jaundiced than he was last night, and he is at times very flushed." Dr. Lloyd Williams administered an anæsthetic and Mr. Mills-Roberts freely opened the knee-joint, making an incision about two inches long on either side of the patella as far back as possible. About six ounces of thick

[1] THE LANCET, July 31st, 1886.

creamy pus (laudable) came away. The joint was well irrigated with carbolic lotion (1 in 40), large drainage-tubes being inserted, and a sal alembroth dressing was applied. The leg was fixed on a McIntyre splint. The temperature in the morning was 100° F. and in the evening it was 101·8° F.—Oct. 14th: "Patient is comfortable. He has no pain and has had a fairly good night, sleeping at intervals after a hypodermic injection of two minims and a half of morphia. The cough is better, there is less expectoration and the sputum is quite clear. The sputum began to clear soon after the operation. He is taking nourishment well." The temperature in the morning was 99·2° F., and in the evening it was 99·8° F.—Oct. 15th: "Crepitation cannot be heard, the jaundice has nearly disappeared and the cough is much better. The patient's general appearance is vastly improved—almost incredibly so. He is taking nourishment well and retaining all he takes." The temperature in the morning was 99° F., and in the evening it was 101° F.—From this day the patient made a rapid recovery. His appetite became enormous. Ether was given three times after the knee-joint was opened, once to drain a pocket in the forearm and twice to break down adhesions. On Nov. 7th the patient sat up in bed; on the 11th the knee was completely healed; and on the 13th the patient was out of bed. The hand and arm were healed. On Dec. 22nd the patient was discharged. He was able to stand without assistance, but he could not walk. He was having massage applied to both limbs. On July 20th of this year the patient could use his hand well. He frequently walked seven or eight miles in a day. He could move his knee to an angle of about 30°.

Remarks by Mr. MILLS-ROBERTS.—A consideration of the facts in the above detailed report of this case induces me to draw attention to a few points of special interest for discussion, from a pathological as well as from a clinical standpoint. Within eight days from the date of the primary injury to the right thumb the case developed clinically into one of a rapidly spreading phlegmonous cellulitis of the forearm, the grave and threatening aspect of which was happily cut short by the prompt intervention of surgical treatment, strictly based upon the aseptic method. At the same time there can be no doubt that the line of treatment adopted was materially promoted by other collateral conditions favourable to the patient—such, for instance, as the purity of the atmosphere surrounding him; the advantages of skilled nursing at the hands of the sister in charge of the hospital, whose unremitting attention ought not to escape the praiseworthy notice it deserves; and, lastly, the ability of the patient himself to take and retain the amount of nourishment given him. To this fortunate combination of circumstances must be attributed the favourable termination of the case. With respect to the phenomena of secondary infection which manifested themselves in the throat and the submaxillary lymphatic glands, in the lung and in the knee-joint, there are two features of interest to which I would specially refer—viz., firstly, their singularly unilateral distribution over the right side of the body, corresponding with the seat of the primary injury and likewise with the primary focus, whence the infection extended; and, secondly, excluding the suppurative arthritis, the transient and abortive character of these secondary affections. Now, with regard to the first point, whether this peculiar distribution was a mere coincidence or whether it is not an unusual one in the process of secondary infection, I cannot decide, since my own experience is too limited for me to express an opinion on the point. Moreover, so far as my recollection serves me, I am not acquainted with any authoritative observations in the literature of the subject relating to any special distribution of the secondary lesions of septic infection. With regard to the mild and transient nature of the symptoms of the lung and throat complications, I shall have occasion to refer to them again; but I may here take the opportunity of making a few remarks upon the suppurative arthritis of the right knee-joint, since this was the most troublesome of all the complications which I had to deal with, and one, moreover, that at one period in the course of the case gave me considerable anxiety on account of its serious effect upon the general condition of the patient. Notwithstanding it s suppurative character, one cannot fail to note the absence of those destructive tendencies, which, as is only too well kno wn, distinguish the genuine pyæmic form of suppurative arthritis, and in contrast, therefore, with this grave form it must be admitted that the arthritis in the above case ran a comparatively mild course, because neither the osseous tissue nor the cartilage and ligaments were involved by any such processes as osteo-myelitis or acute necrosis and tissue destruction. The pus was laudable and sweet when the joint was opened and it remained so; it was easily drained away from the cavity of the joint, in which I have every hope of obtaining good movement in due course of time. I now come to the consideration of an essential feature of this case, in which the interest is mainly centred, and this is in reality an inquiry into the nature of its pathology. Ought this case to be regarded as being one of genuine pyæmia, in which the secondary lesions were the effects of embolism, or was it some modified form, such as a general septic infection of the blood, of which the secondary complications were simply localised pathoigical expressions or manifestationso that were probably caused by thrombosis? In strict accordance with pathological doctrine any case of septic disease originating in some primary wound as the focus of infection and followed by the development of secondary foci of inflammation ought to come under the term "pyæmia." Nevertheless, even in pyæmia the *rôle* played by embolism in the causation of the secondary lesions is open to criticism and requires a careful limitation It is highly improbable that the secondary suppurative processes which occasionally occur in serous membranes, in fasciæ and in joints are the results of embolism, and Wilks and Moxon[2] lay considerable stress on stagnation of the venous circulation in dependent parts in determining the localisation of the secondary lesion as an important factor to be taken into consideration. Other predisposing causes are to be found in a tendency to heart failure (a feebly acting heart) and in certain pathological changes liable to occur in the endothelial lining of veins and capillaries.[3] From a clinical point of view some of the classical symptoms of pyæmia were absent in this case, such as repeated rigors, profuse sweating and the characteristic irregular temperature curve. The temperature was never above 104° F., and, indeed, only twice above 103° F., whilst the rapid emaciation and jaundice are also common to other septic conditions. The experience of the post-mortem room likewise shows that when a genuine pyæmia is established in which the embolic process has begun to play its *rôle* recovery is hopeless. If, then, the above case was one of pyæmia, it was considerably modified and of the exceptionally benign form in which recovery is possible. The throat affection, together with the swelling of the submaxiliary lymphatic glands, was so transient as to scarcely require further comment. As to the lung affection, the physical signs were not at all definite and the admixture of blood with the sputa did not exhibit that intimate blending that one would expect to find in a pulmonary infarct or in a patch of pulmonary apoplexy of considerable dimensions; moreover, the pulmonary infarctions in pyæmia, though multiple, are much too limited in area to give definite physical signs. Lastly, the suppurative arthritis was an occurrence that might be altogether independent of embolism. Nevertheless, the grave and threatening aspect of the symptoms of the case in its earlier stages and the subsequent favourable termination have induced me to place it on record as an additional instance of recovery in cases of septic disease originating in septic infection from a primary wound as the focus of infection.

Notices of Books.

A Treatise on Ruptures. By JONATHAN F. C. H. MACREADY, F.R.C.S., Surgeon to the Great Northern Central Hospital, to the City of London Truss Society &c. With Twenty-four Lithographed Plates and Illustrations in the Text. London: Charles Griffin and Co. 1893.—This is an important and very valuable contribution to surgical literature. It differs from many of the recent works on hernia in its scope and method. Mr. Macready, as surgeon to the City of London Truss Society, has not only had a large experience of one aspect of his subject—the non-operative—but he has been able to employ the statistical method of inquiry by using the careful records kept of the many thousands of patients on the books of this Society. He states

[2] Pathological Anatomy, second edition.
[3] Ponfick.

also that he has had access to the papers of the late Mr. Kingdon, who had devoted great attention to this side of the inquiry. This subject is chiefly dealt with in the earlier chapters of the book and Mr. Macready treats it very thoroughly and carefully. Some readers may think he is too complex; but those who remember how misleading statistics occasionally are will appreciate the care and skill Mr. Macready has shown in dealing with them. The special features of the work are the care and diligence shown in presenting the knowledge accumulated by workers in all times and in all countries. The author has no personal views to advocate, no new theories to advance, no improvements in treatment to introduce; but he has read very widely and he gives succinctly and clearly the views of those who have gradually contributed to our knowledge of hernia; and where their theories or statements require repudiation and correction Mr. Macready does this temperately and judiciously. Our readers will find this an "old-fashioned book"—a mine of wealth for those who will study it, a great storehouse of facts. It differs *in toto* from the essays with which we are all familiar in which a limited personal experience, supplemented by references to a few more or less known authors—German generally—is the basis for a string of "conclusions," so that the reader is saved all trouble; he has but to turn to the final page to learn the gist of the whole matter. At the same time it would be exaggeration to speak of Mr. Macready's book as a "great book." It is not marked by any particular literary merit to charm the reader, nor is there any strong impress of the author's own personality. We do not feel as we read that the field of knowledge is being widened and that the author is advancing the science and art of surgery; but those who consult it in order to find the results of the labours of other men will not be disappointed. On the results of operations for the radical cure of hernia Mr. Macready more than hints that the statements of operating surgeons need great correction. It is entirely wrong to speak of a "cure" when the patient is only seen for the time required for sound healing of the wound. "Recovery from the operation" is very different from "cure of a disease." We all know how difficult it is to gather information on the results of operations after the lapse of years. Mr. Macready writes of patients—so-called "radical cures"—who, having been operated on, afterwards came to the Truss Society still suffering from hernia. It is very natural that he should be greatly impressed by these cases, but we must not be misled by them. Those that are really "cured" of course never appear at the Truss Society—only the failures. When we remember the inherent difficulties in the radical cure, the imperfect methods that have been employed, the imperfect way in which even good methods may be used and the great variety of cases, sometimes ill chosen, in which operation has been performed, we cannot wonder that many "failures" should be met with amongst the patients at the Truss Society. Nor is this all; an operation for "radical cure" is designed to place the patient in as good a position *quâ* the abdominal wall as a man of the same age without a hernia. We are scarcely able to say that we can improve upon a sound, healthy abdominal wall. If we turn to page 11 of Mr. Macready's book we read that "the tendency to hernia increases with age, but the exciting causes are less active." In estimating the results of the "radical cure" allowance must be made for this fact; and some of the so-called failures may be newly-formed hernia in a special sense rather than true relapses. This is to some extent a matter of "words," and to a patient who has been promised a "cure" it matters little what the surgeon calls it if the sufferer is under the same disability as before and has to use the same troublesome truss. No doubt the truth lies somewhere between the statements of operating surgeons who are unable to trace their patients long enough and the experience of the surgeons of the Truss Society, who only come in contact with the failures. The lithographed plates are excellent.

Buxton: its Baths and Climate. By SAMUEL HYDE, M.D., Physician to the Peak Hydro-thermal Establishment, Buxton. Second Edition. London, Manchester and Bristol: John Heywood. 1893.—In this work the merits of Buxton as a spa and health resort are very adequately set forth. Situated at a height of 1000 ft. above the level of the sea, with adjacent uplands rising to 2000 ft., resting on a soil into which limestone largely enters, and having abundance of natural waters (mainly of the mildly alkaline or "earthy" classes) at a moderately warm temperature, the favourite Derbyshire spa evidently possesses considerable natural advantages. The writer advocates the use of the waters (both internally and externally) in rheumatism, gout, sciatica, lumbago, lead palsy, facial paralysis, locomotor ataxy, anæmia, malaria, psoriasis, eczema, leucorrhœa, laryngitis, pharyngitis, bone and joint diseases &c. He also claims that great benefit is to be obtained in pulmonary phthisis from a residence at Buxton, and he states that he has seen numerous successful results. We believe that Buxton is a good summer place for phthisical patients, but in winter it is too deficient in sunshine and too damp and windy for this class of invalids.

Edinburgh Hospital Reports. Published under the Supervision of the Editorial Committee of the Royal Infirmary, Royal Hospital for Sick Children and Royal Maternity and Simpson Memorial Hospital. Edited by G. A. GIBSON, M.D., D.Sc., C. W. CATHCART, M.A., M.B., JOHN THOMSON, M.D., and D. BERRY HART, M.D. Illustrated with Coloured Plates and Engravings. Edinburgh and London: Young J. Pentland. 1893.—We learn from the preface to this the first volume of the Edinburgh Hospital Reports that its production had long been contemplated by the members of the medical school and that the volume appears this year because the difficulties which formerly existed have at last been surmounted. The object of the Reports is to provide a means of recording from year to year some of the work which has been done by those who are, or have been, connected with the institutions represented. In this volume it has been thought well to introduce brief sketches of the rise and progress of the institutions which are mainly concerned in the Reports. Professor Grainger Stewart gives a sketch of the history of the Royal Infirmary and of the development of clinical teaching. Dr. Joseph Bell follows with a history of the surgical side of the Royal Infirmary for the years 1854–92. Dr. G. W. Balfour relates how the Royal Hospital for Sick Children was founded, and Professor A. R. Simpson gives a sketch of the history of the Royal Maternity and Simpson Memorial Hospital. After this historical part of the Reports there are numerous and excellent monographs by many whose names are known wherever graduates of the university are to be found, and that is throughout the universe. We have not space to give even the headings of the subjects treated of, and merely mention the names of those who have contributed to the pages of this volume:—Drs. John Wyllie, Sims Woodhead, Grainger Stewart, Robert Muir, John Playfair, Byrom Bramwell, A. Lockhart Gillespie, Thomas R. Fraser, W. Allan Jamieson, G. A. Gibson, R. W. Philip, James Carmichael, Andrew Smart, G. H. Melville Dunlop, J. Batty Tuke, Robert Saundby, J. O. Affleck, John Thomson, Alexander Bruce, G. Lovell Gulland, R. W. Felkin, John Duncan, John Chiene, Joseph Bell, Alexis Thomson, Alexander Miles, George Mackay, William George Sym, Ernest E. Maddox, P. McBride, D. Berry Hart, J. Halliday Croom, James Haig Ferguson and J. W. Ballantyne, and Messrs. R. A. Fleming, Gerald Fitzgerald, A. C. E. Gray, Frank Ashby Elkins, Geo. M. Robertson, John Pirie, A. Stodart Walker, J. M. Cotterill, F. M. Caird, T. Burn-Murdoch, David Wallace, Charles W. Cathcart, Harold J. Stiles, George A. Berry and H. E. Fraser. In giving accounts of cases a tendency towards undue pro-

lixity is manifested. One of the most difficult of the tasks which fall to members of the medical profession who publish the notes of their cases is to condense them so that the reader can appreciate at once the facts and their bearings and is not wearied by having to read a long account in order to gather the essential points; but when so much is excellent we do not desire to be hypercritical. The third part of the volume contains a statistical report of the medical side of the Royal Infirmary by Dr. A. Lockhart Gillespie, medical registrar, the surgical side being treated of by Dr. Kenneth M. Douglas, surgical registrar; there is also a report of the cases treated in the Royal Hospital for Sick Children by Mr. John Pirie, registrar. This is a part of the reports in which we take especial interest and which we consider to be of much importance, for after all the plain unbiased statement of the work which has been done in the infirmary and the success gained will be chiefly regarded in the future. From the report of the medical side we learn that the number of patients who were admitted to the wards between Oct. 1st, 1891, and Oct. 1st, 1892, was 3984, and that 3975 were discharged, 302 remaining under care at the date of the report. Of these there were discharged: recovered, 1502; relieved, 1555; unrelieved, 438; at own request, 46; transferred to surgical side, 30; whilst 404 died. The percentage of mortality on the total number of patients discharged was 10·16, the average stay in hospital being twenty-eight days. From the report of the surgical registrar we learn that the number of patients admitted during the year was 4043 and that the number of cases treated to a termination was 4101, 259 remaining under treatment. The number of patients discharged cured was 2267; relieved, 1263; unrelieved, 370; and the number of deaths was 201. The percentage of mortality in the surgical hospital was 4·9, the mortality of diseases being 4·06 per cent. and of injuries 8·6 per cent. The number of operations performed during the year was 2171, with a mortality of 5·4 per cent. At the Childrens' Hospital 430 patients were admitted during the year, of which number 292 were discharged cured, 65 were relieved, 14 were unrelieved and 60 died. In the out-patient department in Lauriston-lane 2316 medical cases and 614 surgical cases received attention. We cannot conclude this notice of the first volume of the Reports without a few words of commendation on the manner in which the volume has been produced. The type is large and clear, the illustrations are good, and the way in which the book has been placed before the profession reflects great credit on all concerned in its production.

The Journal of Pathology and Bacteriology. Edited by GERMAN SIMS WOODHEAD, M.D. Vol. I. Edinburgh and London: Young J. Pentland. 1893.—Athough we have had occasion to notice the several numbers of this journal as they appeared, the publication of the whole series in the handsome volume which has just been issued deserves an additional note of commendation. The subject-matter is a credit to British pathology, and it certainly seems curious that with so many able and active observers at work the production of such a medium for the publication of their investigations should have only just been initiated. The work augurs well for the future of the science in this country, and will indeed go far to promote it; for, although there are many pathological societies, to which much of the work done in laboratories and post-mortem rooms is taken, there is ample room for a periodical like the one under notice. Again we may congratulate all concerned in the valuable and permanent addition to scientific literature afforded by this volume—the editors and his collaborators for the intrinsic merits of their productions, and the publisher for the excellent manner, typographical and lithographical, in which the volume has been produced. It is, we trust, the first of a long series of volumes that may form for all time a repertory of sound scientific facts and observation.

Byeways in the Southern Alps: Sketches of Spring and Summer Resorts in Italy and Switzerland. By E. J. MILES, M.D. With Illustrations. London: H. K. Lewis. 1893.—Dr. Miles takes his readers out of the beaten track of Swiss and Italian scenery and introduces them to resorts which are hardly if at all inferior to those on which "Society" has set the hall-mark of its favour. Nor is it only in external landscape and natural features that he finds these less-known regions are so attractive. His medical education and the archæological studies which he adds to the more strictly professional ones place him at peculiar advantage over the ordinary tourist in sifting from the mass of detail brought under his eye those objects and incidents, whether scientific or historical, which are too apt to escape the uninformed or but imperfectly interested spectator. What Goethe said of Rome, "Everyone finds in it exactly what he brings to it," is true of visits to all places on which nature and man have left their imprint; if he brings education, sentiment or sympathy for the beautiful in aspect or the memorable in word or deed he never fails to recognise them where, to the less happily endowed, their presence appeals in vain. So it is that Dr. Miles rewards his own wayfaring and that of the reader who accompanies him by botanical, geological or climatic treasure-trove on the one hand, or by antiquarian, historical, political or social material on the other, which would lie unnoticed beneath the gaze of the languid or but half-enlightened visitor. The "Valsesia in North Piedmont," including Varallo and Fobello and Alagna, forms a chapter which illustrates our criticism, and even when he deviates into the well-worn route of personally conducted travel the same power of educated observation and remark never leaves him. Of this the reader may convince himself by a perusal of the chapters on "Poets' Haunts in the Gulf of Spezia" and "Rambles in Italian Adriatic Cities," such as Rimini, Ravenna and Venice itself. A chapter, however, to which the professional man will turn with yet greater interest is that on the "Eastern Italian Riviera," the line of seaboard which Dr. Miles follows as far as Pisa. Whilst doing ample justice to their climatic virtues as places of invalid resort, he puts in a plea for that city he knows so well—a city which is too often contrasted unfavourably with them,—Rome. What are the facts that his professional experience of the capital of Italy warrants him in adducing? Deaths amongst all classes from typhoid fever in Rome average only 1 in every 3000 of the population, whilst in Siena it is 1 in 800 and at Pisa it is in a still more aggravated ratio. Again, malaria or "Roman fever," the *bête noire* of the outside world, causes a mortality of 1 in 1400, "nearly the whole of the victims being poor and ill-nourished peasants from the villages of the adjacent Campagna, who go to the Roman hospitals for treatment. The deaths amongst visitors from malarious disease are almost *nil*. "Rome, in fact" (and here he confirms all other practitioners, Italian as well as foreign), "is a healthy city, possessing a good system of general drainage and a splendid water-supply." These remarks and the practical hints by which they are followed for the guidance of the visitor to the Eternal City give an opportune value to his volume, which, in view of the great gathering of the medical world which will take place there next Easter, will not escape the professional reader.

VENTILATION OF WORKSHOPS.—At the concluding meeting of the Trades Union Congress on the 9th inst., the Parliamentary Committee was instructed to take steps to secure better ventilation in the various workshops connected with the textile industries. This is a subject which has on several occasions engaged our attention in connexion with reports on the condition of workpeopl employed in different arts and manufactures.

Analytical Records
FROM
THE LANCET LABORATORY.

STAMINAL FOODS.

(THE AERATED BREAD COMPANY, EASTCHEAP HOUSE, 24, EASTCHEAP, E.C.)

One excellent feature common to all these foods is that they yield satisfactory results on analysis in regard to the ratio of soluble and insoluble nitrogenous constituents, carbo-hydrates and mineral ingredients. Staminal oatmeal is a finely powdered and cooked preparation. It is a mixture of two cereals, and our analysis assigns to it the following composition: moisture, 5·95 per cent.; mineral matter (chiefly phosphates), 2·05 per cent.; carbo-hydrates, 73·656 per cent.; nitrogenous substances (N=2·514), 15·83 per cent. Staminal "cocolate" is prepared on careful lines and contains a cereal mixed with cocoa. The cocoa used was evidently of good quality, devoid of all excess of fat and containing no added alkali. The amount of soluble phosphate existing in the mineral matter of this preparation is noteworthy. Analysis gives the following results: moisture, 5·80 per cent.; mineral matter, 4·00 per cent.; carbo-hydrates, 70·27 per cent.; nitrogenous matters (N=2·73), 17·20 per cent. The introduction of cocoa materially increases the nitrogenous value of this preparation. Staminal food is a cooked cereal food and contains a notable proportion of dextrine. The mineral matter is not so high as in the previous specimens, but this may be attributed to the preponderance of wheat flour. On analysis we obtained the following results: moisture, 6·60 per cent; ash, 1·30 per cent.; carbo-hydrates, 75·854 per cent.; nitrogenous substances (N=2·226), 14·02 per cent. Preparations of the kind under examination meet with our approval, since the aim of their manufacture is to provide a food that shall not be lacking in the nutritious elements with which they are naturally endowed and of which they are sometimes deprived.

CONDENSED SWISS MILK AND MILK FOOD.

(HENRI NESTLÉ, VEVEY, SWITZERLAND, AND 9, SNOW-HILL, E.C.)

The composition of this condensed product, according to our analysis, is as follows: moisture, 13·00 per cent.; fat, 10·70 per cent.; non-fatty milk solids, 25·47 per cent.; mineral constituents, 2·04 per cent.; added sugar, 48·79 per cent. This represents a condensation of the original milk to about one-third and leads to the deduction that the original milk had the satisfactory composition indicated in the following figures: fat, 3·78 per cent.; non-fatty solids, 9·00 per cent.; mineral constituents, 0·72 per cent. Our analysis therefore affords no evidence that any deterioration as regards cream has taken place in the condensing process. In short, the preparation may be regarded as consisting of a milk of excellent quality, three parts of which have been concentrated to one part. The presence of undesirable preservatives could not be traced.

Not less satisfactory are the results of analysis of a sample of the same firm's milk food. It contains carbohydrates and nitrogenous materials in suitable form and in desirable proportion, and it really consists of evaporated milk to which a little wheaten flour as well as sugar have been added. But according to the microscope and to chemical tests the flour has been materially and favourably affected by the process of cooking, so that the starch has been largely converted into the soluble and more easily assimilated carbohydrate dextrin. The particulars of analysis are as follows: Moisture, 1·80 per cent.; mineral matter, 1·80 per cent., containing a high proportion of soluble phosphates; nitrogen, 2·14 per cent., equal to 13·48 per cent. nitrogenous principles; carbo-hydrates, 82·92 per cent. According to these results, therefore, the food is valuable not only because of the excellent proportion in which the organic elements are distributed, but also on account of an equally excellent proportion of those substances which minister to the building up of the mineral parts of the body. The flavour is good.

PILSENER LAGER BEER.

(O. BRUSTER & CO., 143A, HOLBORN, E.C.)

Chemical examination furnished no evidence that would enable us to controvert the statement that this beer is "brewed from pure hops and malt only;" in fact, the delicate bitter and excellent flavour of the preparation, apart from analytical considerations, would lead to this conclusion. The beer is brilliant and bright and not excessively charged with gas, and it possesses other properties of the character and quality of the much-esteemed Pilsener lager beer of Germany. Analysis gave the following results: Absolute alcohol by weight, 4·12 per cent.; by volume, 5·16 per cent.; equal to proof spirit, 9·04 per cent.; extractives, 4·32 per cent.; mineral matters, 0·16 per cent. It is a pity that recourse to the use of salicylic acid (a small quantity of which was extracted and recognised) seems to be necessary for the preservation of this beer, but the delicacy of the article, we fear, does not permit its exportation under other circumstances; however, there are other preservatives less objectionable surely than the one which we have indicated.

EFFERVESCENT VICHY TABLETS, EFFERVESCENT LITHIA TABLETS AND CATHARTIC CASCARA PILLS.

(W. R. WARNER & CO., PHILADELPHIA; AGENTS, F. NEWBERY & SONS, 1 & 3, KING EDWARD-STREET, LONDON.)

Effervescent tablets are an introduction in pharmacy which will be valued by many where their employment is sanctioned by the medical adviser. Two varieties have recently been submitted to us for examination—viz., effervescent lithia tablets, containing three grains of lithia citrate, and effervescent Vichy tablets, composed of the salts of Vichy water, which, as is well known, are of an antacid and diuretic character. We have no fault to find with the composition of either specimen, and chemical and spectroscopic analysis confirmed the presence of the salts indicated. The tablets are about the size of a sixpenny piece and dissolve with brisk effervescence.

We have also examined the cascara cathartic pills recently introduced by the same firm. The pill is covered with a pink coating of pure sugar and has the following formula: Cascarin, ¼ gr.; aloin, ¼ gr.; podophyll, ⅛ gr.; ext. bellad., ⅛ gr.; strychnine, $\frac{1}{70}$ gr.; gingerine, ⅛ gr.

REVIVISCENT CHOCOLATE.

(COMPAGNIE FRANCAISE, PARIS AND STRASBOURG; LONDON, BERMONDSEY NEW-ROAD, S.E.)

Absolutely pure chocolate is so strongly bitter as to be almost nauseous to the palate, but the bitterness is modified to the extent of becoming agreeable when the chocolate is compounded with a sweetening agent. For this purpose sugar is of course most commonly employed, but with the laudable view of providing those who are forbidden to use sugar with a nutritious and stimulating sweetmeat the chocolate under notice, which is of a specially pure type, has been sweetened with "saccharin"—at least so our analysis indicates. It is satisfactory to add that we found the preparation to be free from all excess of fat and from any objectionable alkaline substance.

"L.C.B." SOLOIDS OF CORROSIVE SUBLIMATE.

(BURROUGHS, WELLCOME & CO., SNOW-HILL BUILDINGS, E.C.)

Putting aside the question as to whether the Local Government Board were prudent in recommending for popular employment as a suitable disinfectant a solution of a powerful poison, the risk of accidental poisoning becomes even greater when corrosive sublimate may be procured in tablet form, each tablet containing as much as nine grains of the mercuric salt.

It is true, however, that some provision is made against accidents of this kind, since the tablet referred to (the soloid) imparts a blue colour to the water in which it is dissolved and is in addition impregnated with terebinthine oil. In spite of these so far precautionary measures, of which we need hardly say that we approve, we trust that the "soloid" is not intended for indiscriminate popular use, but rather for the convenience of the medical officer of health, to whom, indeed, in time of epidemic it will prove to be invaluable. According to our analysis, each soloid contains the equivalent of nine grains of corrosive sublimate, so that on dissolving two in a quart of water as directed a solution of the strength recommended by the local authority—viz., half an ounce of mercuric chloride in three gallons of water—is obtained. The soloid breaks up with admirable rapidity in water and the constituents are soon dissolved.

HONEY GINGERBREAD.

(FRANK CHAPMAN, GRAYLING WORKS, GRAYLING-ROAD, N.)

The chief novelty in regard to this confection consists in the fact that honey and wax are used in its manufacture, whereby it keeps moist and its qualities remain unimpaired for a surprising period of time. The bread proved to be very plastic and tenacious in the mouth, whilst the presence of honey, wax and ginger is obvious to the palate.

COCA CHAMPAGNE (LAURENT PERRIER).

(HERTZ & COLLINGWOOD, 4, SUSSEX-PLACE, LEADENHALL-STREET, E.C.).

We have submitted the coca champagne (Laurent Perrier) to exhaustive analysis, and the following are the results obtained: alcohol by weight, 10·92 per cent.; by volume, 13·52 per cent.; equal to proof spirit, 23·70 per cent.; extractives, 3·45 per cent.; mineral matter, 0·115 per cent. Not only was the presence of cocaine confirmed (the principal and active constituent of coca extract), but distinct evidence was also gained of the actual leaf extract having been used. The ether, for example, which was employed to extract the alkaloid, yielded on evaporation the characteristic greenish-yellow colour of chlorophyll. The wine is an excellent dry champagne, and the normal and much-esteemed characters of this well-known brand are but slightly affected by the therapeutic principles indicated. The preparation is not only a success from a pharmaceutical point of view, for it requires considerable skill to combine certain medicinal agents satisfactorily with a liquid of the delicate nature of champagne, but affords an effective, although perhaps a luxurious, form of restorative, stimulant and tonic.

New Inventions.

A HAND MACHINE FOR PRODUCING FLOUR FROM ALMONDS FOR THE USE OF DIABETIC PATIENTS.

ANY invention that ministers to the needs of patients suffering from diabetes will be conceded to be a desirable one. Amongst the foods which are at the disposal of those who are denied starchy and saccharine principles almond flour is perhaps one of the best, as it is one of the most palatable; but owing to the nature and structure of the almond kernel some difficulty is experienced in effecting a satisfactory degree of fineness in the flour produced. This difficulty has not only been overcome, it appears, by the invention of Messrs. T. R. Harding and Son of Tower Works, Leeds, but the machine they have recently made provides a means of producing flour at will from the fresh almond at the home of the patient, much in the same way that freshly ground coffee may be obtained from the berry by the use of the hand coffee-mill. The grinding action of this new machine—the dimensions of which do not exceed 17 in. × 9 in. × 6 in., and which weighs only 14 lb.—takes place by the rapid rotation of a brass cylinder furnished with hardened steel pins against a closely fitting iron plate. The almonds are introduced into a hopper at the top, and the flour is discharged through a shoot under the cylinder into a convenient receptacle. By means of a thumbscrew the machine may be firmly fixed to any strong table. We have examined a specimen of almond flour obtained by means of this machine and find that it exhibits all the characteristics of a finely and uniformly ground product. It is practically free from starch, is very palatable, and, moreover, dissolves rapidly in the mouth, a fact which testifies to its excellent "floury" qualities. The machine is calculated, therefore, to effect a considerable and important improvement both in the flavour and in the digestibility of one of the best foods which are at the disposal of those suffering from diabetes.

A TOILET PLATE.

WE have received from Mr. W. P. Brook of Mill House, King's Langley, a novel porcelain plate which is intended to accommodate neatly and tidily the various articles appertaining to the toilet. It is very compact, being twelve inches only at its utmost length and nine inches at its greatest width. It provides a place for everything that can be required in this connexion—sponge, nail-, tooth- and shaving-

brushes, soap, &c. Some difficulty is often experienced, in the case of invalids more or less confined to bed, in placing the accessories of the toilet in convenient array. The device, therefore, whilst it promotes and facilitates cleanliness contributes also to the comfort of the invalid. The patentee has also devised a tray for single or double washstands, which, being capable of holding all ablutionary requisites, will no doubt prove to be convenient for use in the dressing-room.

THE O'CONNOR PATENT EXTENSION.

THIS patent is the invention of a gentleman suffering from lameness, who thought that a more satisfactory apparatus might be devised to enable those who (like himself) had a shortened limb to move about with greater comfort than was to be obtained with the usual appliances. The invention consists of what appears to be a boot with a long "upper," which laces along the front; this boot has no sole to it and its interior is solid, this solid part extending nearly to the top of the "upper" posteriorly (where it bulges backwards for the heel), and sloping downwards in front. On this sloped surface the sole of the foot is placed and secured in position by means of the leather in front, which is laced over it and holds it. The height of this "extension" varies, of course, with the amount of shortening that it is necessary to overcome. When the artificial foot at the end of the extension has been covered with a sock, and a shoe corresponding to the one on the sound foot has been fitted, the deformity is said to be better concealed than by any other apparatus. We have seen the apparatus in use, and by its use the wearer is able to stand firmly and to walk perfectly erect in an easy and natural position. Great support is given to the ankle, rendering the use of irons in most cases unnecessary; and the weight of the body is transmitted to the heel, leaving the toes free and at rest. It is made by Messrs. Lilley and Skinner, 275, High Holborn, W.C.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 16, 1893.

IN view of the fast approaching opening of the Medical Schools it is not unfit that we should devote a few lines to the aspect of medicine presented very impartially and effectively by Professor MCKENDRICK in the Graduation Address, of which we published a full report in THE LANCET of Aug. 19th. There are many ways of looking at medicine, but the most important and imperative of these is to regard it in its bellicose aspect—a calling which has for its object hostility to everything which tends to injure health and to abbreviate the span of human life. Other professions are occasionally entered mainly for the sake of social distinction or status; but the physician is expected, above all things, to be a practical man and to do something in mitigation of bodily evil and in lengthening the life of man. It is satisfactory that a physiologist of standing should take such a subject as this for his Graduation Address. Physiology as it is now pursued by its teachers is so absorbing in its interest and its claims that they are apt to lose touch with practical questions and to forget that their pupils are to pass quickly from the laboratory to the bedside and are soon to be confronted with accident and disease in the cottage or in more stately homes. Professor MCKENDRICK's address shows that he has yielded to no such temptations, but that he is in keen sympathy with the practical side of medical studies. He makes one critical remark which should not be passed over—namely, "that in the last two or three years there have been few discoveries of far-reaching importance." This may be true, but in a practical study like medicine very great good may be done short of discoveries of far-reaching importance; and this is shown very ably by Professor MCKENDRICK himself. After referring to improvements in hospital construction and in nursing, he comes to the triumphs of sanitation. Perhaps the first great stimulating work in this direction was that of Sir JAMES SIMPSON, who demonstrated the evils of hospitalism, soon to be followed by the still more momentous work of Sir JOSEPH LISTER, which was to revolutionise surgery and even medicine too. With just pride he reminded the young graduates of Glasgow that their university was the theatre in which Sir JOSEPH LISTER first detected and demonstrated the applicability of M. PASTEUR'S researches to the awful calamities which of old attended surgery, and that he did so with such success that this part of our calling was deprived of its terrors and has come to be practised with all the amenities and delicacies of a fine art. This was not the whole of service to suffering humanity with which Sir JOSEPH LISTER is to be credited. Those who have most closely watched his work from the beginning will prize it further, if not mainly, for the element of carefulness and thoroughness which it introduced into medicine, and which has been so effective in the exposure of sham work of all sorts.

The remarks of Professor MCKENDRICK on the difficulty in judging of the development of practical medicine from the impossibility of obtaining trustworthy data for sound conclusions are worthy of much attention. Only lately, he observed, has there been anything like a careful registration of hospital cases. All will admit that in this direction there has been a great improvement, though there may be room for much more; but he goes on to regret that in the region of private practice there is absolutely no record of disease, no registration of ordinary cases (excluding cases of zymotic diseases or such of the zymotic diseases as the law requires to be notified). This is no doubt very true, and it is likely to continue to be true for a long time to come. He thinks that registration of cases of serious illness would be a great public gain. Perhaps it would be so; but until it is shown that some great direct benefit to the public health is likely to arise from it such a registration is scarcely likely to be obtained. We have only to remember the opposition that was made to the registration of the zymotic diseases which are intensely infectious in their nature to realise the objection that would be made to anything like the publication of personal particulars of disease in private practice. As to the registration of common ailments by medical practitioners, there is much to be said both for and against. It is not desirable to make the work of medical men too clerical and statistical; neither is it desirable to make too much of ordinary illness. Such action would tend to deter those who suffer from it from applying to medical men at those early stages of disease in which it is most tractable. The strictly private nature of the relation of the general practitioner to his patient is of the first importance, and the maintenance of it should be encouraged in every way. We are sure that the lecturer would agree with us in these general propositions. At the same time we should agree with him in encouraging medical men generally to make their observations of illness and of its treatment as methodical as possible, and so to contribute more out of the rich mines of experience in general practice to the elucidation of the problems of disease in its genesis and in its continuity.

The remarks of Professor MCKENDRICK on certain improvements in medicine, as shown by discoveries of the actual causes of disease and by the large decline in mortality from tuberculous and zymotic affections are well worthy of attention by our readers. He shows from Dr. LONGSTAFFE'S "Studies in Statistics" that in one year there has been a saving of life from phthisis alone of 3966 males and 6806 females—in all, of 10,772 lives. If the improvements in this direction are not still greater the explanation is not far to seek. All that our readers have to do is to read the account of the "Housing of the London Poor" which immediately follows our report of the address (*vide* THE LANCET, Aug. 19th, 1893) and which shows that about one-sixth of the families of London in the year 1891 were still residing in single rooms and that the death-rate in the several localities of London bears an obvious proportion to the density of population so ascertained. The wonder is that such improvement as has taken place has been effected under conditions so unfavourable to life and so discreditable to our civilisation. The fault lies not with the medical profession so much as with the State or society itself in not having done more to make healthy life possible; or if there be blame at the door of the profession it consists in its

having been too timid or reticent in the enunciation of the evils which exist and which it, more than any other profession, has to witness. The war with disease is destined to be more and more strenuous, and it is to be advanced by the unflinching exposure of the evils which the last census has shown still to exist in London and which, doubtless, are equally present in other great centres of population.

PROFESSOR BURDON SANDERSON, the President of the British Association for the Advancement of Science, in his address, took, as was natural, Biology for his theme. The term itself is of modern date, having been first employed by TREVIRANUS at the commencement of the present century, and comprehends physiology, morphology and œcology: physiology, dealing with the functions of the body and their relation to each other, and resting mainly on experiment; morphology, advancing by the study of anatomy and development; œcology—a term invented by HAECKEL—being occupied with the study of the relations of each organism to the outer world, or, in other words, with the varied phenomena of plant and animal life under natural conditions. Professor BURDON SANDERSON points out that modern physiology, the branch he selects for special consideration as the one with which he is most familiar, owes its origin to JOHANNES MÜLLER, who, in the course of his long experience as a teacher, gradually ceased to philosophise, and who at the close of his career recommended his pupils to betake themselves to observation and experiment. The discoveries of SCHWANN and of SCHLEIDIN demonstrating the constancy of the cell in animals and plants, and those of MOHL on protoplasm, opened up the subject of histology or the application of the microscope to the tissues, which was successfully pursued by BOWMAN, SHARPEY and PAGET in this country. Physiology as a science, however, first became endowed with vitality by the labours of five great experimentalists—namely, BRÜCKE, DU BOIS REYMOND, HELMHOLTZ and LUDWIG in Germany, and CLAUDE BERNARD in France. By each and all of them it was recognised that, complex as the phenomena of life are, they may be to a large extent, if not wholly, referred to and explained by well-known chemical and physical processes, rendering it unnecessary to invoke any new force for their manifestation; and hence, as Professor BURDON SANDERSON observes, the analysis of a vital process into its physical and chemical constituents brings these constituents into measurable relation with physical or with chemical standards, which is the only mode of investigating them that can lead to satisfactory results. Thus, he says, if muscular contraction be the subject on which we seek for information, it is obvious that, in order to measure its duration, the mechanical work it accomplishes, the heat wasted in doing it, the electro-motive forces which it develops and the changes of form associated with these phenomena, special modes of observation must be used for each of them and each measurement must, in the first instance, be separately made under special conditions and by methods specially adapted to the required purpose. Nor is this sufficient. The guidance of experiment must again be sought for the purpose of discriminating between apparent and real causes and of determining the order in which the phenomena occur. Professor BURDON SANDERSON then discussed the question of the specific energies of the organism, or the special action which each part performs, illustrating it by examples drawn from the eye and visual perceptions. From this he passed to touch lightly on experimental psychology, the results of which tend to show, he thinks, that the processes in question are as truly functions of organism as the contraction of a muscle or as the changes produced in the retinal pigment by light. He remarked that mental processes have no known physical concomitants; but the observations of BENCE JONES, if we remember rightly, prove that after severe brain work the excretion of phosphates in the urine is increased, whilst it is certain that, as LOMBARD has demonstrated, there is an increase of temperature in the head as a consequence of mental exertion. We have no space to follow Professor BURDON SANDERSON in his remarks upon chemiotaxis and phototaxis, or the influence of chemical agents and light upon living organisms; but we cordially agree with him in his remarks upon the unsatisfactory position which the great and important subject of the causes and mode of prevention of infectious diseases occupies in this country. Those who desire to learn the methods of research or to carry out scientific inquiries have, even at the present day, to resort to some foreign university for knowledge which ought to be readily accessible here, and it is curious that whilst the community at large holds the profession responsible for the spread of epidemics of all kinds it steadily refuses to afford us the requisite opportunities for acquiring the knowledge which is indispensable for their arrest and treatment.

MUCH has been written upon the diseases of occupations. Whilst that insidiously progressive change in and around the vascular system which ultimately pervades, like the vessels themselves, every organ and tissue, and which has received the name of arterio-sclerosis, cannot correctly and exclusively be termed the disease of any given occupation, there appear to be reasons for believing that some forms of that ailment specially affect those who follow certain callings. M. HUCHARD, in his careful treatise on Diseases of the Heart, speaks of it as the disease of physicians, politicians and financiers, and ascribes the special liability of these classes to their practising professions in which the factors of emotion and overwork have a wide influence. We need not here lay too much emphasis on the self-denial and hardships of the medical profession. It will be admitted that we have our share of those human heritages and that we rarely eat the bread of idleness; our increment is duly earned if not always punctually paid. Before the immediate factors in arterio-sclerosis come into play there are antecedent conditions, inherited or acquired, which may call into activity the vitiated metabolism which seems to be potent ultimately in promoting the vascular changes referred to.

The majority of those who adopt the career of medicine from some higher motive than the mere acquisition of means for sustaining life and exercising the usual functions of humanity become members of an honourable calling ruled by tradition and a largely unwritten, but nevertheless well-known, code of honour. There is nothing more easy than to

disregard the "rules of the game" and by methods which we need not further particularise to gain more or less wealth and, it may be, ease. "As a man sows, so shall he reap." "These therefore have their reward." With either their emotions or their overwork we are in no way concerned. The physician, on the other hand, who, having equipped himself for the responsibilities of his calling, has frequently to learn to wait after he has learned to labour, undergoes an ordeal in which one phase of emotion—i. e., suspense—has full scope for influence. Many a prematurely grey head is eloquent of such influence. When, moreover, what has been termed the "ignoble melancholy of insufficient means" has been survived, it is greatly to the credit of a large proportion of our brethren that they have sufficient heart left to be touched by the sorrows of those with whom their calling brings them in contact. Nor is the scope of their emotional nature left unexercised by the too-frequently observed ingratitude of patients. It is not that they regret the loss of remuneration under these circumstances, but that there is something in human nature which, having gone loyally out to aid the distressed, feels the pain of unmerited repulse keenly. Finally, the physician has his share of the joys and sorrows of his race, and shares also in the ordinary vicissitudes of fortune, feeling them perhaps more acutely because a considerable proportion of his class, like that of all the higher callings, is more or less of a neurotic type. These factors no doubt have some influence on that variation in, and over-activity of, the vascular system which predisposes to cardiac and vascular change.

When to these morbific causes we add that kind of overwork which the majority of our profession who are busily occupied have to undergo, we feel disposed to agree with M. HUCHARD when he regards arterio-sclerosis as specially liable to attack medical men. Apart altogether from irregularity in taking food and the more fatal interruption of periodic rest, the hydraulic strain to which the active human body is submitted is frequently very great. In these days of demands for shortened hours of labour it is at times forgotten that the hard-worked practitioner is frequently continuously occupied for consecutive days and nights, a labour for which the human body was never intended and which it cannot sustain with impunity. Before the final breakdown, however, the vessels seem to strive to emulate the heroism of the slave to inexorable duty or necessity and undergo that fallacious increase of development—that arterio-sclerosis—which is the beginning of the end.

How is this vicious sequence of events to be arrested or avoided? Naturally by a diminution of anxiety and an avoidance of overwork. Speaking from experience we feel the mockery of this lame conclusion. We do not by any means concede, however, that nothing can be done by medical men—and we refer, of course, to overworked medical men—to lead a more rational life than is sometimes done. The experience of life teaches us all sooner or later that the anticipation of pain or of pleasure is often greater than the reality, and just as the unexpected sometimes happens, the expected frequently does not. Much unnecessary worry may be avoided by a vigorous prosecution of the duty of the hour. "Sufficient for the day is the evil thereof."

The practitioner's holiday, again, is not to the majority a luxury but a necessity, and except in obedience to the call of an unavoidable duty should never be postponed too long. The variation of days of toil by rational amusement, we need scarcely say, is highly important, but the amusement must be that of the worker who is pausing before renewed effort:

> Regieren und zugleich geniessen—
> Ein grosser Irrthum! Wer befehlen soll
> Muss im Befehlen Seligkeit empfinden.
>
> [To rule and at the same time follow pleasure—
> A grievous error! he who would command
> Must in commanding find his happiness.]

For the rest, as regular a repair as possible of the wasted tissues by an appropriate quantity and quality of food and an endeavour to avoid increasing in any way the labour of the overworked circulation are rational indications in the preventive treatment of that form of arterio-sclerosis with which we are at present concerned.

IT is announced in the public press that the medical officer of health of the county of London, after conference with the medical officer of the Local Government Board, has been authorised by the London County Council to submit to Dr. KLEIN for bacteriological examination material from persons in London who are suspected to be suffering from Asiatic cholera. A letter has been addressed to the medical officer of health of each district in the county informing him of this arrangement and inviting him to give early information to the county medical officer of health of suspected cases of Asiatic cholera which may occur in his district. Replies have been received promising early information. The circumstances of all suspected cases will therefore be known to the public health department of the Council, and the results of Dr. KLEIN'S investigations will at once be made known to the medical officers of health of the London districts. On further inquiry we learn that these arrangements were made last week, and the London County Council has therefore not been backward in placing its administration at the service of the metropolis in dealing with any cases of cholera which may occur amongst its population. Medical officers of health of London districts will certainly welcome this opportunity of obtaining an authoritative opinion as to the nature of cases of disease which may appear in their districts.

We note with much satisfaction this understanding between the Local Government Board and the Council. The duties of the Local Government Board in relation to the whole of the kingdom, and particularly in respect to the preparedness of port sanitary authorities, do not admit of the supersession of local administrations where these are sufficiently strong to undertake local inquiries. Nor, indeed, is it desirable that local administrations should be taught that they can always rely upon the presence of an inspector of the Local Government Board. Such policy would undoubtedly have the effect of depreciating the value of local health services and of tempting sanitary authorities to feel that the appointments they themselves made were of comparatively little importance and that local deficiencies would be compensated by the activity and capability of the headquarter staff.

It must be admitted that the Local Government Board has not an easy part to play with regard to cholera in England. In many districts sanitary authorities have been content with nominally complying with the Public Health

Act by retaining the services of a resident practitioner who is remunerated by the payment of a few pounds annually for the performance of the duties of medical officer of health. The presence of cholera in a community where health services are thus held in light esteem by the local authority must be a matter for grave anxiety to the central Board. In other districts a very different course has been adopted, and there are county councils who have appointed some of the ablest men in the health service to watch over the health administration of their counties. In London the need for the recognition of the administration of the County Council is especially obvious. London is in effect one community and the Council under the Public Health Act of 1891 is intimately concerned in the health of the inhabitants, and London therefore might be trusted with the duty of investigating the circumstances of alleged cases of cholera, especially as it has provided itself with the machinery necessary for the purpose.

Annotations.

"Ne quid nimis."

DEATH OF SURGEON-MAJOR PARKE.

OUR readers will, we feel confident, share with us the extreme regret which we feel in having to record the death of so distinguished, enterprising and brave a man as the late principal medical officer of Mr. Stanley's expedition in search of Emin Pasha. Surgeon-Major Thomas Heazle Parke was on a visit to the Duke and Duchess of St. Albans, at Altna Craig in Argyleshire. He became so unwell in church last Sunday that he had to be removed to a neighbouring cottage. He returned to Altna Craig in the afternoon and in the evening appeared to have quite recovered, but he was found dead in his bedroom on the following morning (Monday last) having apparently expired before he had begun to undress. Very few men have attained such distinction, seen such varied service and done such brilliant work at so early an age as the late Surgeon-Major Parke, who was born in 1857. His merits and the distinguished character of his services were recognised by everybody when the details of the Stanley Expedition were published in "In Darkest Africa"; but we regret to add that this does not imply that they were appreciated or at any rate acknowledged by the Government or by the public service upon which he reflected some of the lustre that belonged to himself. It is true that his work in connexion with the Stanley Expedition was not undertaken for, and in the interest of, the State, the Government or the military service, but we share Mr. Stanley's astonishment at his having received no thanks or acknowledgment of any kind. That he felt this keenly there can be no doubt. It weighed upon his spirits and he came to regard it in the sense of a degradation; not that he wished for any honorary distinction or promotion, for almost any recognition, we believe, would have sufficed; it was the absence of acknowledgment of any kind that he felt and resented. We hope to publish a notice of his life and work in an early issue.

A CONGRESS AT SEA.

THE art of making holiday is well understood by many persons and the methods of business probably by a still greater number. The faculty of combining both pursuits without injustice to either is, however, more difficult of exercise, and it is consequently less often witnessed in successful operation. An experiment which is to be carried out by the Norwegian Medical Congress at its next annual gathering possesses a special interest in this connexion. At the meeting recently held in Christiania it was decided that next year members will assemble on board a yacht, which will cruise during their deliberations. A more seasonable, salutary or, on the whole, economical arrangement could hardly have been arrived at. It remains to be seen if the work of the Congress will be carried out with the same regularity and application as it would be under existing conditions. This is the only point as to which we are at all doubtful. The project is certainly worth a trial. Several circumstances combine to render a holiday at sea—especially when passed, as in summer it usually is, amidst favourable weather—a highly enjoyable means of recreation. The holiday-maker can then freely partake of the purest and richest atmosphere that lungs can breathe, physical exercise within deck-limits may be taken in greater or less measure at the option of individuals, whilst the hours of sleep, waking, meals and occupation may be observed with a minimum of irregularity. All this, coming as the healthy sequel of months, or perhaps years, passed in effort, weariness and worry, confers upon the pleasure voyage to sea a charm and utility which only those can appreciate who have known this happy experience of navigation. Some discretion must of course be employed in the selection of season and weather, but, these being favourable, we know of few more agreeable modes of rest from the cares of medical practice than that proposed by the Norwegian Congress. With a service of well-appointed vessels continually visiting our shores expenses are reduced to a minimum and facilities and comfort are increased in proportion.

JUDICIAL EXAMINATION OF THE INJURED AND DYING.

THE other day in Rome a printer's lad was passing the Palazzo Altieri where it abuts on the showy new street, the Corso Vittorio Emanuele, and, seeing a strange-looking object under the window, touched it tentatively with his walking-stick. In an instant the "object" exploded with a terrific detonation, causing considerable local damage and felling the lad, Giuseppe Riccini by name, to the ground. The police hurried to the spot, picked up Riccini in an unconscious state and carried him to the Consolazione Hospital. There it was found that, together with the shock to the patient's system, extensive and severe scorching of the hands and body had been inflicted, whilst one leg was so shattered as to necessitate immediate amputation. This was done, and no sooner had the lad come to himself, still in agony from the burns and the operation, than he was subjected to a minute and searching interrogatory by the experts of the Questura. These officials had convinced themselves that the victim of the explosion was likewise the author of it—neither more nor less than a conspirator in one or other of the secret anarchical societies which have their seat in Rome as in other great capitals. Ill and hardly able to articulate with pain as he was, Riccini gave a perfectly clear account of himself on the day of the explosion: how he was employed in the printing office of the *Opinione Liberale*, one of the leading newspapers of Italy; how he lived with his father; how he had partaken with him of his evening meal; and how he was on his way to the office when he saw the "object," touched it with his stick and was struck down by the explosion. His statement, however, fell on sceptical ears; the police insisted on connecting him with the placing of the bomb under the Palazzo Altieri, and as fresh suspicions occurred to them he was again examined minutely and pertinaciously not only a second but a third time. One detail in which they found his story to be inconsistent was that relating to his walking-stick; on the spot where the explosion occurred and in the neighbourhood no trace of it, even in fragments, was to be found. It was this discrepancy that made them

mount guard over the patient and proceed to interrogate him as soon as partial recovery from exhaustion or temporary return of speech appeared to dictate, until the symptoms of approaching dissolution set in, when even the half-articulated murmurings of his delirium were taken down. These, it turned out, related to his work at the office and breathed nothing but the anxiety he felt at getting through his appointed task with punctuality and effect. His father presented himself at the door of the hospital and begged to be admitted, but he was sent away with a request to come later, by which time Riccini was no more. Meanwhile inquiries that had been made at the lad's home, at the printing office where he was employed and at the various points which he used to pass daily to and from his work corroborated the testimony of his father, his relatives, his friends and his fellow employés that he was in no way connected with any political society and went to show that he was a lad of exemplary behaviour and of singular amiability of character, on whose antecedents not a shadow of misconduct or misdemeanour in word or deed had rested; whilst, in the eyes of the police at least, the one suspicious "fact" against him—namely, the non-appearance of the stick he said he had carried on the day of the explosion—was finally set at rest in his favour by the extraction of fragments of the stick itself from several parts of his body, where their presence had at first been overlooked. The pathos of the story aroused the sympathies of all Rome for the poor victim and his father, and amongst the questions to which its discussion has given prominence is that of the right which is claimed and exercised by the police of practising so severe and so pertinacious an interrogatory on an inmate of a hospital still under medical care and obviously unfit for so trying and so inopportune an ordeal. The leading journals—naturally enough the *Opinione Liberale* itself—are criticising very sharply and indignantly the autocratic conduct of the Roman Questura in interposing its authority between the surgeons and their patients and in subjecting the latter to an examination which could not but have a fatal result. It is asked, Could the testimony of the poor victim, during the reaction of shock, still dazed with chloroform and in all respects below his normal self as to physical and mental power, be so valuable as to justify his being put in the witness-box, so to speak, and made to respond to the skilfully devised interrogatories of detective officers? Had he possessed sufficient moral and intellectual energy to have realised the danger of incriminating himself, and so, in the event of his recovery, possibly leading to his own conviction and condemnation to the galleys, would not the fear of this exert an influence on him so alarming, so depressing, as to militate against all chance of his leaving the hospital alive? Certainly, the practice of the Roman Questura lays itself open to very grave comment and nothing but the plea of *salus populi* and the necessity of investigating a conspiracy by which society itself was threatened have been adduced in its defence. It is another example, in Italy especially, of the latitude which is allowed itself by the law in over-riding the claims of contemporary interests—medical amongst others—and of pushing its procedure to lengths which, as in the present case, offend the public conscience and create an unfortunate reaction against the executive and its officers. These latter seem to have begun their inquiries at the wrong end, or, at any rate, the poor lad's critical state being considered, to have neglected the sources of information open to them at Riccini's home and place of work. Had they earlier in the investigation ascertained all they did at the close they might have allowed him a chance of recovery, and with it gained the opportunity they never enjoyed—of interrogating him when free from pain and in full possession of his energies, moral and intellectual. As it is they have lost valuable time in the search for the real authors of the explosion; they have aroused against themselves a public opinion which is, after all, amongst their best auxiliaries; and they have accentuated that hostile attitude to medical claims which has already done no good to the ends of justice and tended to alienate two professions which ought never to be at variance.

SWIMMING AS A PART OF SCHOOL EDUCATION.

A FORTUNATE circumstance—namely, the increasing popularity of physical exercise as a part of education—renders it almost unnecessary for us to advocate its adoption as a part of the regular course of school discipline. The example set by the public schools in this respect is now a matter of ancient memory as well as of observation. Like most other worthy models, it has been fruitful of imitation, and we have shown in former issues in what an increasing degree the contagion of athletics has transferred itself to most modern institutions of a like sort, and especially to those immediately under the control of the School Board. We have been recently reminded that some establishments, which necessarily occupy a more isolated position, are equally zealous in this important branch of education by receiving the programme of the annual swimming competition in connexion with the Stepney Jewish Schools, which was held on Wednesday the 13th inst. A list of some twenty events provided ample opportunity for the energies of boys in all the recognised school standards, for old boys and for pupil teachers. The exhibition is one of happy omen. That it is justified by past success is evident from the fact that it is the fourth of its kind. To a wish that in time to come it may often be repeated we would add but one other—namely, that in other schools as in the case of these not only boys but girls should be afforded the privilege of instruction in swimming.

THE RED CROSS IN FRANCE.

ESSENTIALLY international in its conception and aim, the Red Cross recognises as one of its fundamental principles the necessity of concentrating as far as possible in the same hands all the resources vouchsafed it by private benevolence in behalf of the wounded. This principle its founders established to ensure the equable and effective employment of the means at its disposal, a principle, however, which it could not enforce on the several Governments which joined in the Red Cross Federation, but which it earnestly recommended them, in the common interest and for the common cause, to accept. This they all did with the exception of France, which, by a Presidential decree issued on Oct. 12th, 1892, accepted officially the simultaneous contribution of three different societies, only one of which (and that the oldest) is affiliated to the international federation. There are thus in France at this moment three societies, all of them claiming the title of Red Cross—societies which in time of war would, each "for its own hand," levy contributions on benevolent compatriots, but of which two will have no title at all to solicit the aid of the foreign societies. This state of things, we need hardly point out, is not in keeping with the harmonious and international spirit which regulates the societies of the federal Powers; and it is to be feared that the charitable public will experience some perplexity in the inevitable imbroglio thus occasioned. The outcome of such a situation cannot but be this: that the wounded in war must suffer unless an understanding between the contributing societies is brought about, whilst yet we are in full peace. *Au reste*, the occasion seems to be ripe for a revision of the Geneva Convention—that famous treaty, which is too often confounded with the Red Cross Federation but which is absolutely distinct from it, since its constitution on Aug. 22nd, 1864, has more than once been threatened with a rehabilitation under which it would hardly know itself. An

attempt was made in this direction in 1868 and again in 1874; but in vain. Its original text, all its imperfections notwithstanding, remains still *in statu quo*. An initiative in the way of reform was last year taken in Switzerland under the auspices of the superior officers of the Department of Military Hygiene. These functionaries are highly qualified for the task, and, after preliminary deliberations in committee, have agreed upon a revision of the Convention which is to be placed before the Powers which signed the original text. A member of this group of military hygienists, Colonel Bircher, has, we believe, embodied in pamphlet form the innovations that have been proposed. Tha *brochure* we have not yet seen, but its contents are known to deal with difficulties relating to the immunity of the wounded in war and to the sanitary *personnel* and the hospital *matériel* of the Red Cross—to provisions, in fact, which would effectively enlarge the scope and facilitate the working of the several societies. It is to the Conseil Fédéral of Switzerland that the provisions will, in the first instance, be submitted, and should they meet with the approval of that high authority they will then be brought under the notice of the signatory Powers. The movement, indeed, is but one amongst many symptoms of a revolution which is at work in the internal economy of the Red Cross—a revolution which, as we have already indicated, can hardly be arrested until the organisation includes within the sphere of its activity the civil as well as the military calamities that afflict humanity on a scale constantly recurring and showing no tendency to diminish.

THE PRODUCTION OF OXYGEN FROM THE AIR

THE separation of oxygen from the nitrogen of the air has been practically effected by two processes, both of which depend upon (1) the formation of higher oxides of certain metals and (2) the elimination of the oxygen from the higher oxides by the application of high temperatures or of superheated steam. It is well known, for example, that most of the oxygen used in London for limelight purposes, including, we should add, inhalation experiments, is produced directly from the air by means of Brin's expedient, which consists in exposing ordinary heated baryta (BaO) to air that has been freed from carbonic acid. The peroxide of barium (BaO_2) which is thus formed readily yields oxygen on the application of a higher temperature, the reduced oxide (BaO), which may be used again and again, remaining in the retort. Another method of obtaining oxygen from the air consists in heating manganate of potassium ($KMnO_4$) in a current of steam, when oxygen is evolved and caustic potash and the lower oxides of manganese are formed. The caustic potash and the reduced manganese are treated again in contact with air, when manganate due to absorption of the oxygen of the air is re-formed. So this process, like the last, is practically continuous. More recently a process which appears to offer certain advantages over others in vogue, though its action is more complex, has been studied, with the view of establishing it on a commercial scale, by G. Kassner, a German chemist. This chemist employs, in the form of spongy porous masses, calcium plumbate (Ca_2PbO_4) a compound of lime with peroxide of lead, which being first exposed to moist furnace gases absorbs carbonic acid and is converted into a mixture of carbonate of lime and free peroxide of lead. Then on heating this mixture in a retort oxygen, at first in a state of purity, is evolved, but as the temperature rises it is contaminated, more or less, by carbonic acid, which is readily removed, however, by passing the gas over a column of the fresh plumbate. Towards the end of the operation, which is assisted by means of a current of superheated steam, carbonic acid gas in a state of purity is given off. The residue in the retort, consisting of an intimate mixture of lime and litharge (PbO), is reconverted into plumbate by simply driving a current of air through the heated mixture in the retort. Thus the plumbate can be used over and over again in the same way that baryta or manganate is used in the processes previously described. The purity of oxygen is a matter of considerable moment, of course, when the gas is intended for purposes of inhalation. In industrial and other applications, too, it is necessary to employ fairly pure oxygen if good results are desired. Judging from recent literature on the subject of oxygen in its application in the arts and industries, there appears to be an increasing demand for a process which will provide a pure gas at a reasonably cheap rate. Of the individual processes described, however, experience must be left to decide which is best suited for the purposes in view. Already oxygen has been suggested as an effective agent in the purification of sewage, but as yet no practical success seems to have attended the efforts of the enterprising investigators.

UNQUALIFIED ASSISTANTS AND FALSE CERTIFICATES.

THE papers have given much publicity to a case at Islington, unfortunately not an uncommon one, in which an unqualified assistant posed as the assistant of a registered medical man. In the present instance the registered practitioner is Mr. J. W. Smyth and his pretended assistant, also his brother-in-law, Mr. John William Bowd. The case, investigated by the coroner, was one of tuberculous meningitis, and was attended throughout by Mr. Bowd, Mr. Smyth's name being on the premises, though it is fair to say without his authority. The grandmother took Mr. Bowd to be a qualified practitioner. When the child died Mr. Bowd gave a certificate, signing and well imitating the name of Mr. Smyth. Mr. H. F. Stokes, who made the necropsy, said the child died from exhaustion following general tuberculosis. The jury found accordingly, and added the following rider: "The jury, having heard in evidence that the deceased was attended by an unqualified person named John William Bowd, and that such person forged the death certificate by signing it in the name of John William Smyth, a qualified medical practitioner, desire to represent the same to the Registrar-General, with a view to immediate prosecution; and the jury further regret that Dr. Smyth did not take legal steps to repudiate the connexion which the said Bowd claimed as his assistant." The jury would have failed in their duty if they had not acted as they have done. The deception practised is an intolerable one. Mr. Smyth in his evidence said that he had some time since discontinued relations with Mr. Bowd, and cautioned him against continuing to practise there, and never gave him any authority to make use of his name. The case is one which should be fully investigated in the interests of the poor by the Registrar-General.

THE PREVENTION OF PREVENTABLE DISEASE.

IN the July number of the *Glasgow Medical Journal* there is published an address which was delivered before the Obstetrical and Gynæcological Society of that city by Sir Spencer Wells on the Prevention of Preventable Disease. Taking into consideration as the basis of his remarks the question as to the preventable nature and prevention of puerperal fever, he referred to the remarkable and well-known observations of Semmelweiss which led to the introduction of antiseptics into obstetric practice and pressed his claims to international recognition and gratitude, an opportunity for evincing which was at present offered by the movement to erect a moument to his memory in Budapest. He then proceeded to consider whether there may not be a safer and better antiseptic than carbolic acid or perchloride of mercury and referred to Professor Pasteur's indication of the value of a saturated solution of boracic acid. "It is reported very confidently," Sir Spencer Wells remarked, "that in several French materniti.s

where this antiseptic has been properly used puerperal fever has almost disappeared." The successful employment of this substance in cases of catarrh of the bladder which had resisted other antiseptic methods was noted. Greater precision with regard to knowledge of the dosage and character of different antiseptics for different morbific agents was then referred to, after which Sir Spencer Wells touched upon some of the more recent and important conclusions of bacteriological research such as that which showed that certain bacilli, which were harmless whilst leading an isolated existence, become destructive on the introduction of another bacillus which was equally innocuous when living apart, and pointed out the practical lesson to be drawn from this fact in the necessity for scrupulous asepticism of the hands of the midwife or accoucheur if the ravages of puerperal fever were to be stayed. He emphasised the superiority of asepticism to antisepticism and he referred to the researches of Metchnikoff on phagocytosis and also to those of Ruffer, which went to prove that all antiseptics if introduced under the skin repelled the leucocytes, whose importance in the healing of wounds and the prevention of infection Metchnikoff had pointed out. After referring to the possibly parasitic nature of cancer and to the desirability of the notification of all preventable disease, Sir Spencer Wells dealt with the post-mortem prevention of such diseases. "Assuming," he said, "that if preventable diseases are to be prevented early notification of cases as they occur must be insisted on, and that when they end fatally the cause of death must be always accurately certified, another important question arises, How should we dispose of the dead body?" Sir Spencer Wells, whose views on cremation are well known, advocated that method, especially in the case of those who died from preventable diseases.

THE INFLUENCE OF SMALL-POX HOSPITALS.

THE spread of small-pox around hospitals devoted to its treatment is now no very uncommon occurrence, but only in a few of these instances have careful and reliable inquiries into the exact distribution of the disease taken place. Dr. James Niven, the medical officer of health for Oldham, has, however, paid special attention to the behaviour of small-pox around the Westhulme Hospital during the recent prevalence of the disease, and he has embodied the results of his investigations in his annual report for 1892. By way of as far as possible eliminating error Dr. Niven embraced in his statistics only untraced cases—i.e., those concerning which he was unable to obtain any history of infection. This selection has certainly the advantage of reducing the effects of personal contact to a minimum, but is it not perhaps a little hard on the theory of aerial convection to assume that because certain cases might have been accounted for by personal contact that therefore they were so caused? However, no one can accuse Dr. Niven of having approached the subject with a preconceived bias in favour of aerial convection. Adopting the recognised system of dividing the area comprised within a radius of one mile from the hospital into quarter-mile zones, it was found that from within outwards the percentage of houses affected diminished progressively from 4·7 in the inner zone to 0·42 in the outer, whilst outside the mile radius the percentage was only 0·12. These figures cover the period included between Jan. 1st, 1892, and March 31st, 1893, and each untraced case represents a house, so that houses and cases are to be considered as equivalent. Dr. Niven also gives for purposes of comparison the figures as to houses affected around the hospital in 1888, and practically they may be regarded as evincing the same diminution from within outwards as those just quoted, the percentage of houses attacked ranging from 3·5 in the inner zone to 0·24 in the outer one. Here, then, we find, on two separate occasions, the same remarkable grouping of cases around the Westhulme Hospital, and the question naturally arises as to whether this was due to contact between the untraced cases and the officials of the hospital, or to the effects of the aerial convection of the disease. With regard to the theory of personal contagion Dr. Niven states, in reference to the recent outbreak: "I may say at once that I am satisfied that no such contact has taken place," and assuming that it was due to aerial diffusion, which he says is the most likely cause, he proceeds to discuss the important question as to the distance a small-pox hospital should be removed from centres of population. These occurrences around the Oldham hospital are the more interesting in that Dr. Niven's training and experience fit him in an exceptional degree for an investigation of this nature. His report, following so closely upon Mr. Gornall's account of the Warrington outbreak, seems to suggest that when the history of the recent small-pox epidemic comes to be written we shall hear of other instances of a somewhat similar description. It is right to add that the Oldham Town Council are about to erect a permanent small-pox hospital at a distance from the town.

ANTISEPTICISM AND EDINBURGH SURGERY.

DR. GEORGE EMERSON BREWER writes a letter to the *New York Medical Record* "On Medical Study in Edinburgh." The criticism throughout is couched in most kindly and complimentary terms, with one exception. It is alleged that "with one or, possibly, two exceptions the surgeons of Edinburgh utterly fail to appreciate the advantages to be gained by the application of aseptic methods of wound treatment, now so generally practised by surgeons throughout the civilised world, or if they appreciate the advantages they fail to give their patients the benefit of them." He subsequently goes with some detail into the alleged want of care in excluding sepsis on the part of the surgeon, the nurses or the assistants. This is a serious charge to bring against a school in which Sir Joseph Lister spent some years in developing the antiseptic system, which he first adopted in Glasgow. We mention the letter because it is important that such statements should not be allowed to pass unnoticed and especially without the attention of those concerned being called to the matter.

DANGEROUS MATCHES.

THE introduction of the safety match was one of considerable importance to the community, since it has tended to minimise the risk of fire arising from accidental or spontaneous ignition of ordinary phosphorus matches, as well as to lessen the number of cases of accidental poisoning that have been known to arise from children sucking the phosphoric tips. The safety match, in fact, contains no phosphorus at all; the phosphorus is on the rubber of the box, and the tip consists of a mixture of chlorate of potassium and sulphide of antimony or other combustion-supporting material. It is upon this principle that the safety match, with which everybody is familiar as the tändstickor, and as made in Sweden, is constructed. When properly made, and when due attention has been given to the selection of the materials composing such a tip, this kind of match is doubtless the safest and most satisfactory to use. Matches, however, are occasionally found in the market which, although having the composition of the safety match, are probably carelessly and more cheaply constructed. We have before us, for example, some matches of Swedish manufacture, obtained at random, which are described as "safety" and as lighting only on the box. These matches light and flare with a sudden puff, spluttering and scattering red-hot fused particles in all directions, which, even if they luckily escape the clothes, hands or eyes of the striker, find lodgment, perhaps unnoticed, in a crevice or in some easily inflammable material, and it is not difficult to imagine that consequences of a disastrous character may thus easily arise. Nor is it improbable

that some fires attributed to "causes unknown" may have had their origin in an occurrence of this kind. It is advisable, therefore, to test and examine matches, and especially the cheaper kinds of Swedish manufacture, before buying and using them for household purposes, for it is obvious that the undesirable properties of these matches may not only prove a source of destruction to property but also a source of serious injury to the person. It is needless to point out to the manufacturers of such matches the necessity for improvement in the selection of materials in their manufacture, especially as the remedy is one which it is easy for the public to apply.

CHANGES IN EXCITABILITY AND FARADAISM.

THE effect of galvanism—the constant current—in restoring the excitability of muscles whose nervous supply has been injured is a recognised fact. It was to be expected that faradaism might have analogous effects in increasing the excitability to faradaism where the faradaic reaction was present. The subject has been recently investigated by Dr. L. Mann, an abstract of whose paper appears in the *Neurologisches Centralblatt*. The problems he set himself to determine were the changes, if any, to faradaic stimulation which a nerve or muscle showed immediately after the application of the induced current, and whether, by repeated systematic stimulation, a nerve or muscle showed alterations in faradaic excitability. The results are somewhat curious. He found that a weak current, not producing contraction, produced no immediate change in irritability, whilst a strong current, causing active contraction, had the immediate effect of much reducing the irritability, this effect being proportional to the intensity and duration of the stimulation. Systematically repeated faradaisation, on the other hand, was found to determine an increased excitability in both muscle and nerve.

"RUNNING AMOK."

SOME weeks ago we referred in an annotation[1] to the curious psychosis which is prevalent in the East, but more particularly in the Malay peninsula, and which is popularly known as "running amok." The condition has been described more or less minutely and carefully by various observers, but with regard to the essential features of the seizure—for such we must consider it to be—there is little difference of opinion. The active agent, armed usually with some more or less deadly weapon, starts his wild career, as a rule, in some public road or thoroughfare, running along and stabbing or otherwise maiming all who come across his path, and he pursues his way until he is brought to bay in a more or less forcible manner. This violent outbreak is usually preceded by a period of depression, intensified, according to some, by a wilful brooding over wrongs, real or imaginary—"nursing his wrath to keep it warm"—and it is with regard to this period of depression and morbid introspection that we have ventured to designate the condition as a psychosis. Such manifestations of sudden homicidal mania, however, are not, unfortunately, confined to what are usually known as the inferior races. Post-epileptic mania with homicidal impulses is a condition with which our criminal courts are familiar enough, although in the opinion of many the slighter forms of it, and especially the curious but most dangerous automatism which follows slight epileptic fits, are not sufficiently taken into account in these places. The same may be said of the form of epilepsy known as "procursine," in which the patient commences to run without any apparent object. This condition may either precede or follow an epileptic attack, but its chief danger is to the patient. There are, however, other conditions even more closely resembling the "amok" of the Malays, which are undoubtedly the result of a disturbed psychical condition; and our daily contemporaries recently furnished intelligence of an example of this of a very grave and unfortunately most tragic character. A man in Dundee, who had been much abroad and was the subject of ague, after a course of conduct spreading apparently over several weeks—sufficiently curious, to say the least of it, to have attracted the attention of the authorities—deliberately shot at and wounded two women, firing several shots to effect his purpose. He then retired to the attic where he lived, defying anyone to enter, and he was not secured before he had inflicted serious and in some cases fatal injuries on the police officers and others who tried to secure his capture. Such a deplorable occurrence as this is all the more to be regretted because of the fact that for some time the man's behaviour had been the source of much annoyance, not to say anxiety, to his neighbours; and if the account which has appeared in the papers is an accurate one, it seems strange that steps were not taken to have him at least carefully observed before his condition had led to the serious results to which we have just referred. Such a "running amok" should scarcely be possible amidst all the safeguards with which we are surrounded. No doubt it would have been shorn of many of its terrors if even slight difficulties had been placed in the way of his purchasing a pistol.

[1] THE LANCET, July 15th, 1893.

A LANCASHIRE PROBLEM.

A WRITER in a recent issue of the *Pall Mall Gazette* gives under this heading some details which deserve more than passing notice. The subject is that of the mortality in Lancashire manufacturing towns, and those selected are Manchester, Preston, Salford, Blackburn and Bolton—all typical cotton manufacturing towns,—the writer thinking that it is to certain conditions of the cotton industry that the high mortality must be attributed. The mortality of these towns is compared with that of the average death-rate in thirty-three large towns, with the result that whilst the latter is a fraction over 23, that of Bolton has been 28, of Manchester and Salford 28, of Blackburn 29 and of Preston 40. The returns comprise those of each week from July 5th to Aug. 16th last. Roughly speaking, for every 23 deaths in England and Wales there have been 30 in the five towns specified. It cannot be attributed to the presence of any serious epidemic, for though diarrhœa has caused many deaths this is not peculiar to Lancashire and cannot be regarded as the *fons et origo mali*. The conclusion come to is that it is the children of the operative class who swell the death returns, and that the Minotaur who makes this tribute upon the infant life of the county is the present system of female labour. A further analysis of the returns shows (1) that it is only with regard to deaths under five years that the mortality of Lancashire towns is strikingly exceptional, and (2) that it is the cotton operative population, far more than the ordinary labouring population, which contributes the excess of infantile mortality. The cause of this is, the writer urges, the existing system of female labour which robs the child of the maternal care to which the most elementary instincts of nature tell us it is entitled, and leaves it to live or die, sink or swim, as a kindly Providence may order. Then follows a very graphic description of the mother rising at half-past five in the morning, wrapping the month-old child in a shawl, hurrying it off to a neighbour to whose mercies, tender or otherwise, it is left together with other similar bundles of humanity until six o'clock in the evening, when the mother, worn out with twelve hours' drudgery at the loom, comes to its rescue and takes it home. It is fed during the day on the bottle, which may be sweet or sour, and applied with discretion or indiscretion, as the temper of the nurse dictates. Supposing that she has several infants to look after it would be contrary to all our knowledge of human nature to expect that these children should

receive in the matter of food and cleanliness from a hireling not over well-paid the care which each might receive from its mother were she in a position to bestow it. As a remedy against such a deplorable condition of things the writer recognises the important fact that female labour is an institution too deeply rooted to be lightly trifled with, especially in Lancashire, and to suggest any drastic measures would be mere foolishness. But assuming the details published by our contemporary to be correct—and we see no reason for doubting this—the high rate of infant mortality amongst the cotton operatives demands attention from the local authorities and the Government.

BACTERIOLOGICAL EXAMINATIONS IN CHOLERA.

KOCH'S comma bacillus is held by the highest authorities to be the invariable concomitant of true cholera and its detection in the dejecta is consequently considered to be conclusive evidence as to the nature of any given case. That Dr. Klein has a deservedly high reputation as a bacteriologist and scientific observer there can be no doubt, and personally we should not hesitate to accept his reports and conclusions on matters that had been subjected to his investigation. Still, we think, considering the importance which attaches to these examinations and in justice to himself and to the public, that it would be expedient that they should not be confined to any one authority, however eminent, and we would suggest that other competent bacteriologists, of whom there are several in this country, should coöperate with Dr. Klein in these investigations and share a responsibility which is now thrown upon one authority.

THE RISING NILE AND MORTALITY IN EGYPT.

IN accordance with its immutable custom the Nile began to rise at Cairo at the commencement of August. On the first of the month the height marked on the Nilometer at Rodah was 14·68 metres, the lowest record during the year having been 13·91 metres on June 4th. By Aug. 8th the level of the river had risen to 16·74 metres, and the following week a height of 17·96 metres was registered. The flood was consequently well established on the latter date and all the accumulated filth of the stagnant months had been swept away and dispersed in the Mediterranean. Under these circumstances an improvement in the mortality returns may soon be looked for; but of course it will take some time before the poisonous effect of the low-season water ceases to make itself felt. Until Aug. 17th no improvement was apparent in the general health, as may be seen from the following table:

Period from Aug. 4th to Aug. 17th.	Percentage of deaths under one year.	Percentage of deaths under five years.	Deaths under one year per 1000 births.	Deaths under five years per 1000 births.
Thirty towns in Upper and Lower Egypt	38·9	69·2	401	714
Rosetta	21·4	42·8	103	206
Damietta	12·7	38·2	74	222

Both Damietta and Rosetta are included amongst the thirty towns; were they excluded the figures would be even more unfavourable than they are. For the last five or six weeks the health of the latter of these two towns has shown signs of improvement. It would be interesting to learn what has been the condition of the water-supply since this amelioration first manifested itself. It is quite possible, though of course merely a conjecture, that the high-level canal may have failed towards the end of the summer, the poorer classes as well as their more fortunate fellow citizens being compelled to have recourse to the cisterns as at Damietta. If this supposition were to turn out to be correct, it would afford another argument in proof of the poisonous quality of stagnant Nile water, were further confirmation necessary of a fact which has over and over again been proved in the clearest manner.

THE DIFFUSION OF SMALL-POX.

SMALL-POX continues to make itself felt in various parts of the country. In London 28 cases have occurred; at Woodgreen, 4; at Walsal, 38; at Birmingham, 3; at Leicester, 3; at Bradford, 10; at Wakefield, 5; at Westfield, 2; and at St. George's (Bristol), 2. In the Metropolitan Asylums Board Hospitals 108 patients were suffering from small-pox on the 12th inst.

MEDICAL ADVERTISING.

WE have received a lengthy communication from Mr. Martin Doyle pointing out that a large number of medical men in the colonies advertise in one way or another and, in fact, giving proofs of his statement. However this may be, it is certainly impossible for members of the profession here to approve of professional advertising in any form, whether in this country or in the colonies.

WHAT IS "GENUINE" MILK?

AN interesting but exceptional case was heard before the magistrate at the Marylebone Police-court last week, when a farmer appeared to answer two summonses taken out by a sanitary inspector who had procured samples of the defendant's milk which were alleged to be adulterated with water to the extent of 6 and 7 per cent. respectively. The defendant affirmed that the milk was in the same condition as when it was taken from the cows; in support of which independent analyses were shown which confirmed the results of the public analyst. These samples were, as a matter of fact, taken in the presence of the analyst by whom they were subsequently analysed. In this case both analysts agreed as to the composition of the milk, but the public analyst very naturally reported adulteration to the extent indicated, basing his interpretation upon the average normal composition of good milk. Indeed, the referee analyst would probably have decided the same thing had he not personally supervised the milking process. According, however, to the wording of the certificates provided by the authorities this milk was undoubtedly genuine, but certainly abnormal. This case, it is to be feared, only increases the difficulties of the public analyst in deciding upon the question of the adulteration of milk. The Act affords him no help whatever, and as public analyst he is expected to possess some means of determining the extent of adulteration with water, and to do this he must base his calculations on the average composition of normal milk; but occasionally this average is seriously departed from, and the excess of water proves not to be "added" except by the cow, but to be due to poor feeding, bad condition, or, as in the case quoted, to drought affecting the character of the food. Either it must be insisted that milk should be supplied of a standard quality or else other machinery beyond that provided by the Food and Drugs Act must be put into motion—that is, if the adulteration of milk with water is to be checked. The magistrate in the instance above alluded to was bound to dismiss both summonses in view of the clear evidence before him.

TUBERCULOUS PLEURISY.

IN the Shattuck Lecture for 1893[1] Dr. William Osler has contributed a valuable article on the subject of tuberculous pleurisy. One of the most interesting portions of the lecture is that which deals with diagnosis. A disease

[1] Boston Medical and Surgical Journal, 1893, Aug. 3rd and 10th

which presents clinical variations so extreme as those exhibited by this disease must necessarily offer serious difficulties in its detection, as the appearance of the individual, the family history, the onset, the course, or the character of the exudation may not be in any way suggestive. On the one hand, Dr. Osler remarks, there can be no question that many instances occur in robust individuals previously of good health, which have all the characters of pleurisy *a frigore;* and yet the subsequent history may point very clearly to the fact that the process has been from the outset tuberculous. On the other hand, the view which has of late found so much favour, that a large proportion of all acute pleurisies are tuberculous, is certainly unfounded; for in the series of cases examined by him non-tuberculous pleurisy of one form or another was present in two-thirds. Dr. Osler lays stress on the careful inspection of the groups of lymph glands contiguous to the pleura, and on the repeated examination of the expectoration, which may contain tubercle bacilli from even a very small focus of softening tubercle in communication with the bronchus. The physical characters of the exudation offer, in a majority of instances, nothing distinctive. A hæmorrhagic condition is suggestive but is by no means distinctive, and it may be present in either a chronic or in an acute form. Bacteriological examination in acute pleurisies leads to the general conclusion that, except in rare instances, the serous exudations are sterile, and tubercle bacilli have only been detected in a very moderate number. The injection of the exudations into the peritoneum of the guinea-pig also gives variable results, but when positive is of great value. The diagnosis of the purulent form of tuberculous pleurisy is less difficult. A proportion of these cases—at least 75 per cent.—depend upon infection with streptococci, pneumococci or staphylococci. The tubercle bacillus may be present, and in some acute cases it may be very abundant, in the pus. In other cases, definitely proved to be tuberculous, staphylococci have been present, and sometimes the effusion is sterile. It has long been known that the latent variety of empyema is not uncommonly tuberculous.

FOREIGN UNIVERSITY INTELLIGENCE.

Heidelberg.—Dr. Paul Ernst has been promoted to an Extraordinary Professorship of Bacteriology and Pathological Anatomy.

Jena.—Dr. Neumeister has been promoted to an Extraordinary Professorship of Physiological Chemistry.

Kharkoff.—Dr. E. K. Rodzaevski of Kazan has been appointed Professor of Pharmacology.

Kieff.—Dr. Podvysotski has been promoted to the Ordinary Professorship of General Pathology.

Prague (Bohemian University).—Dr. Janosik has been promoted to the Ordinary Professorship of Histology and Embryology.

Vienna.—Two new clinics are about to be established—a "Fourth Medical" and a "Third Surgical." The former will be under the charge of Professor F. Kraus, and room will be found for it in the General Hospital by utilising one of the "departments," the medical officer of which is about to retire. The surgical clinic will be the "department" at present under Professor Weinlechner, who will be promoted to the new chair.—Dr. Weichselbaum has been appointed to succeed the late Professor Kundrat in the chair of Pathological Anatomy.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.

THE death of the following distinguished member of the medical profession abroad has been announced:—Dr. A. Strauch, Secretary of the Imperial Academy of Sciences and Director of the Zoological Museum, St. Petersburg. Though a Doctor of Medicine, Dr. Strauch never practised, having always, since taking his degree in Dorpat, interested himself more particularly in zoological research. His death occurred at Wiesbaden.

THE Exhibition of the Red Cross in Rome (which was to have been a main feature of the International Exhibition of Medicine and Surgery which is now deferred in company with the International Congress) will be opened on the 20th inst. This step had to be taken on account of the "competitive" character of much of the *matériel* of the Red Cross at the general exhibition in question, the "King Humbert and Queen Margherite Prize" of 10,000 francs having to be decided within the present month. Dr. Paolo Postemski, Professor of Clinical Surgery in the University of Rome, is directing the Exhibition, which includes a vast assortment of appliances for transporting or treating the wounded on the battlefield. Germany and France are already largely to the front amongst the competing exhibitors; whilst other Powers, many of whose appliances are remarkable for ingenuity and adaptability, are also contributing daily. The El Dorado in the Via Nazionale is the scene of the Exhibition, and at its opening all the Powers which sent delegates to the Red Cross Congress, which was held in the Capitol last year, will again be represented. A large attendance of the public, professional and lay, is also expected, there being now no element in the sanitary condition of Rome to deter visitors.

IT is reported that leprosy is slowly, but steadily, increasing in Spain, especially in Tarragona, Valencia, Almeria, Alicante and Cadiz. It would appear that the Moorish type of the disease has been perpetuated in the populations of some of the Mediterranean provinces.

DR. CARLO RAIMONDI, the distinguished Professor of Medicine and Experimental Pharmacology in the University of Siena, has just been appointed Director of the Scuola di Farmacia in the same city for the next three years.

CHOLERA.

CURRENT NOTES, COMMENTS AND CRITICISM.

WE may open our weekly statement regarding the progress of cholera by remarking that notwithstanding the extension of the disease to this country and the occurrence of cases of choleraic disease in various places, the late period of the year and the dryness and coldness of the atmosphere at this season are factors unfavourable to its epidemic extension and development, and we may reasonably hope and believe, therefore, that cholera will not manifest itself in any epidemic intensity in this country during this, whatever it may do next, year.

Looking over the observations which we have made from time to time since the first appearance of cholera in France, Russia, Mecca and elsewhere we are, we think, justified in saying that in a broad and general sense the course of the disease and the progress of events making up the medical history of Europe and this country with regard to cholera have been fairly successfully foreshadowed. We have always maintained and have striven to point out that cholera must be studied and considered from two aspects—the epidemiological and the local—and that an epidemic is not a mere congeries of items spread more or less widely by facilities of communication and capable of being arrested or "stamped out," as it is termed, by measures taken against outbreaks in communities or attacks in individuals. That much may be done in this direction is no doubt true, but, after all, our main reliance must be placed

on sanitation, in its broadest as well as in its more restricted aspects, and there are facts in abundance to prove that this is so. As we have said already, it is pretty well recognised that life assurance offices are but little affected by cholera; the class of people who assure their lives do not commonly die of the disease, and if we could only place the poorer classes of the population in the same position as those who effect life assurances they would probably obtain a similar immunity. And parallel with this view is another which goes to prove the same thing—viz., the marked decline in the death-rate from cholera amongst European troops in the Bengal Presidency as a whole, which may be fairly attributed to the sanitary and social improvements that have taken place. In the ten years from 1870 to 1879, for example, the average mortality was 4·18 per 1000, as compared with 9·24 per 1000 in the previous ten years, and a progressive improvement has taken place since that time, for, from 1881 to 1890, it was 1·48, in 1890 it was 0·99 and in 1891 it was 2·73 per 1000. If we are ever to obtain the whole truth regarding cholera it must, it seems to us, be studied and regarded to a great extent as a branch of natural history. It is essential to strive, at any rate, to discriminate between what are the primary truths regarding epidemic cholera and what are the secondary ones. It is the study of these secondary truths that is, no doubt, fruitful of result. It is very like beating the air to struggle to find out the causes of epidemics of disease; and to assign these to telluric influences and similar causes is to hide our ignorance in a cloud of phrases; but to compare the histories of a series of epidemics with the view of drawing inferences from past experience is perfectly justifiable and even necessary. The questions by which we are confronted at present and which have to be determined by scientific observation and investigation of the facts presented during the present epidemic are, in the first place, whether Koch's comma bacillus is not only an invariable concomitant of true cholera, but whether it is present in that disease from the very commencement or simply because cholera furnishes the conditions necessary or favourable for its growth and development; and, assuming that these bacilli are the *contagium vivum*—the real and indubitable cause of cholera in man and, by inoculation, in animals—by the transfer of which, through various media from a cholera case to a healthy subject, the disease is reproduced, we have next to inquire how far the establishment of these facts elucidates the phenomena and history of epidemics of cholera as they actually occur in nature. The relation of cholera with regard to time and space in its migrations, visiting one community with dire results whilst leaving others comparatively untouched, although the epidemic movement can still be traced—the life history, in short, of an epidemic,—and its topographical and statistical phenomena seem to occupy another plane and to belong to another region of knowledge, which, however obscure and difficult of elucidation, has nevertheless to be taken into account. We cannot doubt that any epidemic manifestation and any outbreak of cholera must take its place in a system, and that what has been appreciably true with regard to cholera in the past will continue to be so in the future, and not through mere coincidence, but in subordination to natural agencies. That the pursuit of this knowledge is a very difficult task is perfectly true, but it need not prove altogether barren of practical results, and in any case it cannot be ignored as if it had no existence. We take no credit to ourselves, for we were not at all singular in contending that cholera probably would not spread in this country last year, because as far as we could calculate it was not due to spread here then, notwithstanding that it might be introduced. It must not be forgotten that, even assuming that cholera is a purely infectious disease, infection seems to be inadequate by itself to account for all the phenomena. We say inadequate, because on any hypothesis many facts have to be accounted for—such as its non-appearance at times and places where the communication between infected and non-infected places is free, and on the other hand its almost simultaneous manifestation in many places and the regularity of its appearance in different epidemics; the occurrence of sporadic cases and the increase in the mortality from diarrhœa and cholera nostras as the precursors of an epidemic or outbreak later on; the relation of the disease to season; its decadence and final disappearance from a given locality within a definite time when the conditions remain apparently exactly the same; its synchronous rise and fall during an epidemic at different places where it happens to be prevailing, as if in obedience to some common influence; its not radiating in all directions from a common centre of infection, but travelling in a definite direction and not retrograding, and the subsequent exemption of places over which the epidemic has already passed with great severity and where the sources of subsequent reinfection must be manifold; the localising effects of certain places as compared with others in a given district; and the very remarkable natural exemption of the lower animals during an epidemic or severe outbreak, if these animals are capable of being affected when artificially inoculated with cholera virus. It is easy to realise the introduction of a specific micro-organism into the water-supply of a city or town, but it is extremely difficult to account for its distribution and presence in isolated cases and in circumscribed outbreaks or sparsely inhabited villages widely separated from one another. There are many other considerations, but these will suffice in the meantime to indicate the need for additional light.

One of the features which has characterised the present epidemic still appears to occupy a prominent position—viz., the vast area which the epidemic covers and over which cases are distributed as compared with the small proportion of places and persons that are attacked, notwithstanding the communication that must have taken place between them. The frequency, too, with which the disease has broken out in lunatic asylums, gaols and other institutions in which people live in communities is a striking phenomenon, pointing to the influence of localising conditions and overcrowding and to the effect which the continuous nature of the occupation of such buildings has in favouring the incidence of epidemic disease, an influence which is thoroughly recognised in India and which forms the basis of sanitary regulation and action. We have already acquired a certain amount of positive knowledge of a practical, scientific and available kind with regard to cholera, and if we are to advance with safety and success in that direction it is most important that our methods of investigation should not be hampered and hindered by the promulgation of hypotheses and theories on the part of persons who have not had the necessary time and opportunity for ascertaining the inadequacy of their exclusive views to cover all the facts. When a question has to be decided on evidence both sides have to be considered, and it is necessary, in weighing the positive evidence regarding the communicability of this disease, to take note also of the places and persons that have escaped, if we are to avoid making unqualified assertions simply because they happen to be based upon generally accepted doctrines. This is, we contend, the proper scientific attitude to be assumed in all scientific inquiries.

We must apologise to our readers for the length of these somewhat discursive prefatory remarks and pass on to chronicle the progress of cholera abroad.

As regards Russia the official bulletin from St. Peters urg of the 9th inst. shows that from the 1st to the 7th inst. 59 fresh cases and 21 deaths have occurred in St. Petersburg At Moscow, from Aug. 31st to the 3rd inst., there were 82 cases and 38 deaths, which is a considerable decrease as compared with the previous three days The return gives the following figures for the different provinces from the 20th to the 26th ult. :—Warsaw, 1 case and 1 death; Volhynia,

120 cases and 39 deaths; Voronesh, 205 cases and 86 deaths; Kasan, 317 cases and 146 deaths; Kursk, 778 cases and 310 deaths; Mohileff, 316 cases and 122 deaths. From the 27th ult. to the 2nd inst. there were 248 cases and 99 deaths in the province of Moscow, 13 cases and 5 deaths in the province of St. Petersburg, 21 cases and 16 deaths in the province of Radoff, and 161 cases and 47 deaths in the province of Tschernigoff; 164 cases and 91 deaths occurred inthe Don territory from Aug. 30th to the 2nd inst. A later telegram from St. Petersburg of the 12th inst. states that, from the 8th to the 10th inst., 81 cases of cholera and 31 deaths occurred in this city. At Cronstadt, from the 3rd to the 9th inst., 2 cases and 1 death occurred; at Moscow, from the 4th to the 8th inst., 75 cases and 35 deaths; in the government of Warsaw, from the 27th ult. to the 2nd inst., 1 case and 1 death; the government of Vladimir, 385 cases and 148 deaths; the government of Volhynia, 228 cases and 72 deaths; the government of Voronesh, 431 cases and 186 deaths; the government of Grodno, 247 cases and 70 deaths; the government of Kieff, 789 cases and 297 deaths; the government of Minsk, 329 cases and 102 deaths; and the government of Mohileff, 642 cases and 224 deaths. In Nijni Novgorod, from the 13th ult. to the 9th inst., there were 1465 cases and 728 deaths; and in Podolia, from the 20th ult. to the 2nd inst., 1722 cases and 653 deaths. Cholera also prevails extensively in the province of Taurida and in the Crimea—notably, in the towns of Simferopol and Kronenthal.

As regards Turkey, we learn from Constantinople that cholera still prevails in the Lunatic Asylum at Scutari. The outbreak has been a severe one; the total number of cases and deaths in that institution up to the 14th inst. are stated to have been 101 and 65 respectively. The disease has also broken out in the Central Prison at Constantinople, and at the French and Municipal hospitals in Pera. There are from 20 to 30 cases daily, with a mortality of over 30 per cent. According to a late official bulletin 14 fresh cases and 5 deaths occurred in Constantinople during twenty-four hours ending the 10th inst.

Berlin has not so far been at all severely visited. Only 13 cases occurred in that city in five weeks, and there had been no fresh cases for some days, but some have occurred since. As regards the rest of Germany, a few cases have been reported to the Imperial Health Office from Solingen, Andermach, Hamburg, St. Gour on the Rhine, Kurzegrack on the Vistula, and at Papier Mühle.

From Vienna the reports are somewhat more favourable and are indicative of a decline of the epidemic in Galicia and Hungary. A large number of cases, however, still continues to be registered daily in the Galician district of Kolomea. The disease still prevails to a slight extent in Cracow.

Cholera still continues in Rotterdam, where there have been 28 cases reported since August, 17 of which terminated fatally. Reports from the Hague giving the results of the latest returns of cholera in the Netherlands show that, in addition to the attacks in Rotterdam, the disease prevails at Groenedyk in the commune of Hontenisse and at Walsoord in the province of Zeeland, with sporadic cases at Leerdam, Meppel, Gonda, Zwijndrecht, Zwartsluis, Wanneperveen and other places. There seems to be very little cholera at Amsterdam, but a fresh case is nevertheless reported there from time to time.

Accounts from Rome show that only a few cases of cholera have occurred in that city and that an outbreak of the disease had taken place in the low quarter of the town of Leghorn. Cholera still prevails at Naples, at Cassino, at Palermo and at Pettorano, near Salnona, where 15 cases and 10 deaths have taken place since Aug. 24th. Rome, it should be mentioned, enjoys an excellent water-supply.

From France we hear little of the prevalence of cholera. The outbreak at Nantes appears to have terminated. Six deaths, attended by choleraic symptoms, have occurred in the district of Prades.

From St. Sebastian we learn that cases of cholera, attended with the usual amount of fatality, have appeared at Belchite, in Aragon, including the wife of the officer commanding the district and the rector of the parish.

Cases have likewise occurred in various vessels during the voyage to different places, and have been reported from time to time at foreign ports of arrival or call.

A record of cholera would be incomplete without reference to the terrible story which reaches us from Tunis through Reuter's Agency, of the mortality amongst the pilgrims to and from the holy city of Mecca. One insensibly goes back to Old Testament history to find a parallel to it, for the facts are as tragic as the imagination could well conceive, and they serve to demonstrate what cholera can do amongst a vast crowd of half-starved pilgrims exhausted by fatigue, heat and overcrowding, without organisation or sanitary arrangements of any kind. The loss of life was simply appalling. It is estimated that of the thousands who left Tunis and the adjacent ports last May upwards of half perished from cholera, disease and fatigue. Here, then, is a source of danger nearer to Europe than India is.

It is a noteworthy feature of the cholera record abroad and on the Continent that, although cholera has been so widely distributed and that isolated sporadic cases or small groups of cases or very circumscribed and limited outbreaks in institutions or villages have been remarkably frequent, there have been relatively few outbreaks on a large scale—like that of Hamburg, for example—or any broad progressive extension of the cholera epidemic like that by which Russia has been visited; on the contrary, the epidemic in Europe generally, when it has invaded a country or province, has manifested itself at a relatively small number of places of the total number of towns and villages, and local explosive extensions of the disease have been comparatively infrequent. One of the significant features, too, of the epidemic has been the appreciable interval that has frequently taken place between the first appearance of isolated, sparsely distributed cases of choleraic disease of a doubtful, ill-determined character and its subsequent manifestations on a larger scale and of a more pronounced or of an unmistakable type.

With regard to this country, either cases of real or alleged cholera or of choleraic diarrhœa, or cases of a suspicious character have occurred at Grimsby, Cleethorpes, Hull, London, Leeds, Rotherham, Bradford, Doncaster, Retford, West Hartlepool, Boston, Gainsborough, Leicester, Hereford, Middleton (Lancashire), Ashbourne (Derbyshire) and probably elsewhere. We do not think that any candid mind surveying the facts connected with these events and the distribution of cholera in this country at the present time would say that they are all to be accounted for on the hypothesis of the use of drinking water specifically infected by the stools of patients suffering from cholera, although foul drinking water is the most effective agency in the propagation of cholera; nor is the evidence in favour of the hypothesis of contagion so strong as to warrant us in pushing its application to a logical conclusion—viz., rigid quarantine and isolation carried to such an extent (for nothing short of that would be of any service) as to be prohibitive of all commercial and other intercourse, which could only have the effect of making life intolerable.

CHOLERA AT GRIMSBY.

(FROM OUR SPECIAL CORRESPONDENT.)

The First Case.—Dwellings with Plenty of Air and Light.—The Tide-logged Sewers.—The Proposed Remedy.—Dust, Box Closets and Germs.

SEEING that cholera has occurred at Grimsby, it is but natural to infer that the town possesses some very bad

slums and many serious defects in respect to sanitation. Judging from outward appearances the very reverse is the case; it has rarely been my good fortune to visit slums where there was so much light, air and space—in fact, it is doubtful if the word slum can be applied to any part of Grimsby. So far at least as cholera is concerned Trinity-square is the black spot, and yet the poor of London, Liverpool and many other large English towns, to say nothing of continental towns, would envy the inhabitants of Trinity-square. Trinity-street is a broad street leading from the main Grimsby and Cleethorpe-road to the edge of the Humber. The whole district is swept by the sea air; the houses are only one storey high. They are all small red-brick workman's cottages; there is nothing to impede the free circulation of the air, nor are there any back-to-back houses—on the contrary, through ventilation can be established in each house. Trinity-square consists of nine houses, with their fronts on Trinity-street. At the back and at right angles with these nine houses are three rows of houses occupying a square plot of ground called Trinity-square. One of these rows has 30 ft. of open space in front and 8 ft. behind. The middle row has 30 ft. on one side and 26 ft. to 27 ft. on the other, and the third row has 26 ft. to 27 ft. in front and 17 ft. behind. These rows contain eight to nine cottages each. The rooms on an average measure 8 ft. 6 in. to 9 ft. in height and 11 ft. by 12 ft. in surface. There are four rooms to each cottage, with a small outbuilding in the back-yard for a coalhouse and for the closet. On Aug. 11th at 59, Trinity-street, situated by the passage entrance to Trinity-square and forming one side of the square, a man was suddenly taken ill. He had been an engine driver, but had been out of work for some six months previously. Since then he had obtained casual employment in the docks, where he helped to unload timber ships. The work he did was very casual and unreliable, and it so happened that after being unemployed for some time he had worked very hard during the week previous to his illness, and it was then very hot. He died suddenly and I believe was not seen by any medical man till after death. This is considered the first case of cholera. I am told, but I have not yet been able to verify the fact, that a woman who lived in the same house had been ill a fortnight previously. After the death of the man she went to her sister's house and died there a few days later. At No. 59 lodgers, generally seafaring men, were taken in and doubtless there was some overcrowding. On Aug. 20th, at the farthest end of one of the rows behind this house, another death from cholera occurred, and on Aug. 31st a man and his daughter were seized with cholera in the house just opposite. They both died. Altogether there have been seven cases in Trinity-street and Trinity-square. From this centre the disease spread to the neighbouring streets, Humber-street, Sterling-street &c., and, crossing the Cleethorpe-road, invaded a number of streets on the other side, such as Rutland-street, Hanover-street, Weelsby-street &c. Outbreaks were then reported in all parts of the town, but only scattered isolated cases. Anything approaching to an epidemic has prevailed only in the north-east district of Grimsby. This a very remarkable circumstance, for the worst, the most dilapidated and crowded houses are in the central or southern portions of Grimsby. The quarter which has suffered most is one of the newest, and, to all outward appearance, one of the best-built districts of the town. It is true that in this neighbourhood the disease attacked, in the first instance, its weakest point—namely, Trinity-square—but it soon spread to other streets that are not easy to criticise from a sanitary point of view. On the contrary, it is impossible to refrain from admiration when visiting the long rows of clean bright cottages, with their well-polished windows, their spotless white curtains and general trim, tidy appearance. The streets are so broad and the cottages so low—rarely more than one storey high—that the walls are well bathed with sunlight. Behind each cottage there is a long, narrow yard or garden. The space occupied by each cottage varies from 80 ft. to 90 ft. in length. The building itself covers about 30 ft. If we add to this the washhouse, coal-house and closet, which occupy but half the width and height of the cottage, we have a building on 40 ft. to 45 ft. deep of ground. There then remains 40 ft. to 50 ft. of yard or garden. As the row beyond is disposed in the same manner, there is behind the houses about 125 ft. of open space between the nearest buildings. Some of the houses or cottages I have visited where cases of cholera have occurred are quite ideal in respect to their neatness, cleanliness and vast open space both at the back and the front.

Nevertheless, the district is unhealthy—a fact which is demonstrated not only because it has suffered more than other parts of the town from cholera and diarrhœa, but because of the endemic prevalence of typhoid fever. Under these circumstances it is natural to suspect the drainage of the locality. The drainage is bad; this is admitted by all, but I do not know that it is worse in this district than in other districts. Grimsby stands on ground that is nearly flat, or absolutely flat. Yet there are sewers in every street; but as these sewers are not and cannot be self-cleansing, therefore they only receive kitchen or slop-water and rain-water. This is all, for there are no factories worth mentioning at Grimsby. The main sewers are tubular-shaped and measure seven feet in diameter. The average fall is 1 in 1600, the minimum 1 in 1800, the maximum 1 in 1200. The latter fall is very exceptional. The tributary sewers are of glazed hardware pipes of nine and twelve inches diameter, and the fall in almost every instance is insufficient. But worse than this is the fact that the sewers are, during a great portion of the day, water-logged. For want of level the sewers can only empty themselves at low tide. Nor is this all; there is a small rivulet called the East March drain which joins the main sewer of Grimsby near the outfall and further helps to fill up this sewer with the more or less foul drainage of a considerable agricultural district. If to all this we add an occasional downfall of rain there is enough to fill up the main sewers for a considerable distance. Indeed, the main sewer is sometimes absolutely full from the locked or closed outfall half-way up through the town. On these occasions the sewer gases must be driven back into the town, and would, under such strong pressure, force their way through traps and other obstacles. It has been noticed that there is generally more than the usual amount of typhoid fever in September. The Mayor of Grimsby, who is also chairman of the drainage committee, considers that this is due to the accumulation of deposits in the sewers during the dry summer months and then the forcing back into the town of the sewer gases by the first heavy rains of the autumn.

To reduce the evils that this must cause drains are not built under the houses, but outside in the back yards; along the passage at the end of the back yards is the tributary sewer which falls into the sewer of the street running at right angles with the row. Formerly the sinks communicated with the drains; wherever discovered the connexion has been cut off, so that the water empties over a gully outside the house walls. The sewers are ventilated by man-holes in the centre of the streets; a ventilation which, to judge from the results, must be qualified as insufficient. Thus we have tide-locked sewers occasioning—especially after heavy rains—a large escape of sewer gases; but these gases escape in the open streets or the back yards and not inside the houses. Most fortunately there are, as a rule, no drains inside the houses. It is proposed to remedy this state of affairs by building near the port a large lofty water tower; sea water or fresh water will be pumped to the summit of this tower, and then by iron pipes it will be conveyed to the head of all the main sewers, so that they may be thoroughly flushed. On the other hand, near the present outfall a pumping station will be erected by which the sewage will be raised and pumped into the Humber, even at high tide. Thus the sewers will no longer be tide-logged, and it is thought that, in spite of the want of fall the sewers will be cleaned by the process of flushing. But the tributary sewers will only be flushed by carts taken round to occasionally discharge some water into them. Will this flushing from carts be sufficient? Is there not a danger that it may occasionally be neglected and thus nuisances again arise? But the gravest objection to the scheme is that it leaves the present pail or box system unaltered. There are no water-closets at Grimsby. Small boxes or pails are placed under the closet seats and removed once a week by a contractor. The contents are not treated in any way. They are not converted into guano, but sent in their raw, crude condition to agricultural districts as manure. If every pronounced case of cholera has been isolated and the dejecta disinfected the same cannot be said of those numerous cases of diarrhœa which are perhaps abortive cholera and just as contagious as fully developed cholera. Is it safe to use such dejecta for manure? These are grave considerations and, judging at first sight, it does seem to me that, with but comparatively small extra expense, a complete system of drainage might be devised which would not only overcome the difficulties due to the flat nature of the ground, but would also do away with the nasty box system now applied to almost every house in Grimsby.

Since writing the above, I am informed that the scheme for flushing the sewers already described has been adopted by the Grimsby municipality. Perhaps, however, there may still be time to raise some objections; not that I wish to criticise the scheme as it stands and so far as it goes. What I think should be studied and discussed is the question of the box closets, which the scheme does not touch or in any way alter. I have pointed out that the houses, especially in the district where cholera has been most prevalent, are exceptionally favoured in respect of open spaces, both at the back and front, and that their drainage is, in any case, not worse than that of other parts of the town. It is, therefore, extremely difficult to say why this quarter should have suffered most; but if cholera was imported then it is a mere matter of chance as to which quarter of the town is exposed to the first imported case. Supposing some case of imported cholera escaped detection and was located in the north-east or Trinity-square district of Grimsby, might not the box closets have helped to propagate the disease, more especially in this district? What has particularly impressed me about these box closets is their exposure to the wind. They are not covered, the closet door is very often left open, as is also the lid of the seat, and immediately under the seat is the uncovered box. To reduce the nuisance of the box the inhabitants throw in cinders. The box also sometimes serves as a dustbin and receives dry household refuse. In the closet wall there is a small door as well as an aperture from which the box is drawn out once a week. This aperture creates a draught and there is generally so much wind that particles of ash, dust &c. can easily be blown out of the box into the back yards. Close at hand, also at the back of the house, is the open door or window of the kitchen. It is thus almost certain that ashes or dust which have been in contact with the dejecta in the box of the closet are blown out of it into the neighbouring kitchens and mingle with the food. To increase this danger, as it were, the method of emptying the boxes is clumsy in the extreme. The nightsoil men come with a large receptacle, into which they empty the contents of the box close by the closet door and therefore close by the houses and their kitchens. Of course, in doing this a certain amount of dust escapes. Then the larger receptacle is carried on the shoulders of the men to the end of the yard or to the street, and there more dust is set free by discharging the contents of the larger receptacle into the nightsoil cart. This operation takes place at each house every week; therefore it may be said that the back of the houses are once a week covered with dust that has been in contact with human dejecta. Certainly where a case of cholera is known to exist, or a case of typhoid fever, a special pail is used and the dejecta of the patient are placed in this pail, which is carefully closed and disinfected; but before this stage is reached the closet has already been contaminated, and there are doubtless numerous cases of choleraic diarrhœa which though slight are infectious, and where no such precautions have been or could be taken. Professors Pettenkofer, Emmerich and others, having swallowed pure cultures of the comma bacilli, suffered only from slight diarrhœa, but their dejecta contained millions of comma bacilli. What would have become of these millions of germs in the dry and the moist ashes of a Grimsby box closet? Would some of the bacilli have adhered to the loose dust and been blown about, and, falling on milk or other articles of food close at hand, have multiplied whilst waiting to be consumed by some human being? In default of other explanations to account for the spread of cholera and epidemic diarrhœa in what appears to be in other respects a very healthy district may we not suspect the box closets? Of course, all this is conjecture; still, it leads me to repeat once more that any scheme for dealing with the drainage of Grimsby should include the abolition of the box closets.

CHOLERA AT LEICESTER.

On Sept. 9th a case of cholera was reported by Dr. Pratt to Dr. Priestley (medical officer of health) and a consultation was held. The patient (aged seventy-four years) died on Sept. 10th and the post-mortem examination revealed the following: Internal organs were healthy, with the exception of the ileum and about one inch of the cæcum near the ileo-cæcal valve, in which positions there were unmistakable signs of congestion. Bacteriological examination revealed the comma bacilli, and in this view of the case Drs. Pratt and Priestley have since been supported by Dr. Klein, to whom a portion of the ileum was immediately sent. The clinical symptoms of the disease were well marked. The stage of collapse was also well marked and from this stage the patient never rallied. Ether and atropia were injected subcutaneously. The most stringent sanitary precautions have been taken, and as the case was probably imported from Cleethorpes, through the medium of oysters, there is no reason to fear an extension of the disease.

CHOLERA IN ESSEX.

During the last few weeks several rapidly fatal cases of English cholera have occurred in this county and have naturally caused a certain amount of alarm. In the Maldon rural sanitary district nearly all the inmates of three isolated cottages obtaining water from a polluted brook were attacked with diarrhœa, one child dying within twenty-four hours. Dr. F. Carter, the medical officer of health for the Billericay rural sanitary district, was suddenly attacked last week and for a few hours his life was despaired of. He subsequently made a rapid recovery. At the Flowers' Mission Home, Clacton-on-Sea, one of the inmates (a girl aged six) was attacked with cramps, diarrhœa and vomiting, and when Dr. Murray was called in he found her collapsed, with sunken features, pulseless and blue. Death occurred within twelve hours from the commencement of the attack. Some of the rice-water stools have been sent to Dr. Klein for examination. On the following day the matron and nine of the children were attacked, but are now doing well. The home consists of four houses and contains nearly 100 children. The outbreak is being investigated by Dr. Cook, the medical officer of health. It is also stated that a case of cholera has occurred on board a yacht in the river Colne between Brightlingsea and Wivenhoe. The yacht came from Trouville and the symptoms exhibited by the sufferer appear to be of the Asiatic type. The patient has been removed to a place of safety at a distance. In consequence of the prevalence of such cases the medical officers of health for the districts in the county have met together to discuss the best precautionary measures to be taken and how to act should an undoubted case of Asiatic cholera occur. Some anxiety is naturally felt as to what may occur during the next few weeks; but the cholera scare will have one good effect if it only incites a few of the sanitary authorities to carry out improvements of a permanent character. The Chelmsford and Maldon sanitary authorities are likely to find employment for a good many labourers during the coming winter, as they have received the sanction of the Local Government Board to carry out three schemes of water-supply affecting the whole or parts of no less than eleven parishes. The Chelmsford authority also hope to complete their isolation hospital. Such an exhibition of energy is worthy of being followed by other rural districts.

CHOLERA AT ANTWERP.

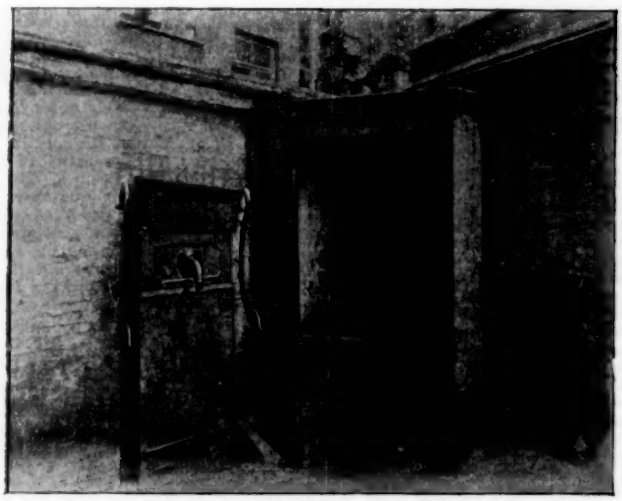
(FROM OUR SPECIAL CORRESPONDENT.)

Cesspools and Wells.—Why Antwerp cannot be drained.—How Cesspools become Watertight.—The Reduced Death-rate.

LAST year, it will be remembered, I pointed out the dangerous condition of affairs at Antwerp, and that only one-fifth of the population drank the water of the Waterworks Company, whilst the remaining four-fifths obtained their water from wells, which, as often as not, were situated close to cesspools. There are sewers, but these only receive the rain water and the slop or kitchen water. Under these conditions the wells were likely to be contaminated; and, indeed, the water from various wells had on analysis been shown to contain sewage matter. I was in this respect more particularly impressed by one house. In the backyard there was a closet, and against the closet wall there was a pump to raise the water from a well. The midden or cesspool was at the side of the well. On the other side of the partition wall there was a second closet and another pump which communicated with the same well. This house contained a small café or drink shop, so that the bargemen and other persons who frequented this place drank the well water. I have now revisited these premises, and I found everything scrupulously clean and the walls freshly whitewashed, but there was the

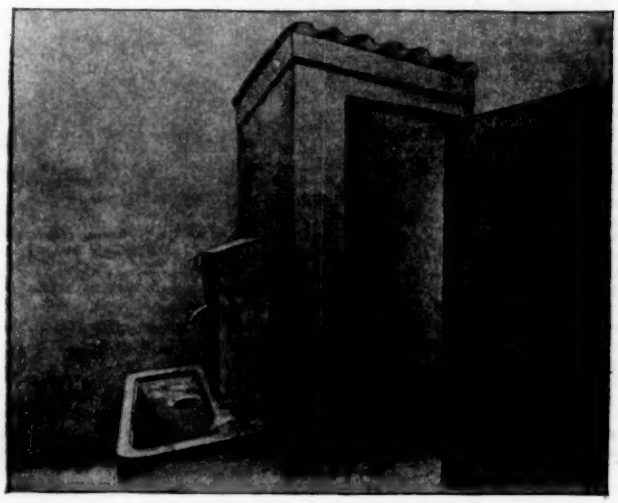
closet and there was also the well next to the cesspool. Though the yard was very narrow and the light bad I attempted to take a photograph of the well pump and the closet, and, however defective the result, the engraving will serve to show the close proximity of the one to the other. This particular house is, unfortunately, no exception. In the same street I photographed another closet, which was in the angle of a very small backyard. The well pump, it will be seen, though not actually against the closet wall, is within a few inches, and the well below is probably only separated from the cesspool by the thickness of the brick walls. Again, in another street, I visited the dairy which I had seen last year. The place was in the same state of disorder and dirt. There were the closets and the well close to each other and close to the stables where cows are located. The quaint Flemish brass milk-cans are washed with the water from the well which is situated in this yard. Last year there were several cases of cholera in this street; indeed, both these streets are situated in the principal centre of the last epidemic.

FIG. 1.



Small back yard, showing the midden closet close to the pump which brings up the drinking water from the well. The cesspit and well must therefore touch each other.

FIG. 2.



Back yard, showing the well pump against the wall of the midden closet. The same exists on the other side of the wall for the next house which is a public-house. Cesspits, well- and rain-water cistern all three touch each other.

It is very remarkable that the epidemic has not caused greater ravages and that the general health of Antwerp is, on the whole, so good. I have discussed this matter at great length with M. Royers, the chief engineer of the town. My first ques-

tion was whether, after the injury which had been done to the town by cholera last year, the authorities had not determined to protect themselves in the future by carrying out a general scheme of drainage. Either the wells or the cesspools must be abolished. Of the two the provision of a general water-supply to replace the wells was considered to be the most difficult. This problem would be best solved by a national scheme of water-supply, bringing water from the high lands of the Meuse and Eastern Belgium to the low lands of Flanders. So gigantic a scheme could only be carried out by the nation, with the support of numerous large towns. A project of this description has been carefully prepared, but for the moment, at least, the Government does not encourage the scheme. Therefore, as Antwerp is not likely to have a good water-supply available for the entire population, it is more practical to seek to protect the wells, for they cannot be abolished. It is consequently the cesspools that should be abolished; but M. Royers explained to me that, under the existing conditions, it would not be safe to drain into the sewers. Not only are the sewers deficient in fall, but some of them are considerably below the water level. At high tides the Scheldt is at Antwerp 6 metres 50 centimetres above the sea level. The tide is usually 4 metres 20 centimetres high. The Place St. Jean at Antwerp is only 4·80 metres above the sea level, so that with a high spring tide it is considerably below the waters of the Scheldt. Worse than this, the district which is known as the Dam, near the docks, is only 3 metres above the sea level, so that twice every day it is at least 1 metre 20 centimetres below the level of the river. The result is that the sewers of Antwerp can only empty into the river at low tide. If in addition to this it is remembered that rain falls irrespectively of the condition of the tide, it will occasion no surprise to hear that the sewers are not merely channels to carry off water, but they are huge reservoirs where the water—especially the rain water—can be stored for several hours till the tide is low enough to admit its escape by gravitation into the river. It is for these reasons that the cesspools are maintained and only slop water and rain water are admitted into the sewers. In the absence of a natural fall and with districts that are actually below the level of the river drainage by gravitation would require such an enormous number of pumping stations as to be impracticable. The only possible solution of the problem would be the adoption of some system of drainage which would work independently of gravitation. Thus the authorities are convinced that the ordinary systems of drainage by water carriage and gravitation cannot be applied to Antwerp, and they are not yet sure that any other system is available. Therefore, whilst admitting that cesspools and wells side by side are altogether wrong in principle, they have tried to make the best of this state of affairs.

Considering the condition of the town, it is surprising that the consequences have not been more disastrous. The comparative freedom from disease is due to fortuitous circumstances, not the least amongst these being the use of ashes in the mixing of mortar. In the poorer quarters of Antwerp there are men who make a regular business of going from house to house to buy the white, well-burnt ash. This is used to mix with lime instead of cinders and, in a measure, instead of sand. The amount of sand which is employed is very small. The result is that the mortar which is used helps very materially to render both the wells and the cesspools watertight. It has been noticed that the bricks themselves become watertight. Generally when a house is built, particularly if in a very damp position, cement and other materials are used to make the walls watertight. Occasionally, however, these precautions have not been taken and consequently much inconvenience has been experienced. At first the damp came through the walls, but after a while the pores of the bricks seemed to become choked, and the house became as dry as the houses that are most elaborately protected against damp. The same thing is supposed to happen with respect to the brick walls of the cesspools. The municipality, however, does not trust to these accidental circumstances. Cesspools and wells were built carelessly formerly, but now there are strict regulations. The outer wall of a cesspool must be 30 centimetres thick, then there should be over the inner surface a layer of cement, and after this 10 centimetres of masonry or brickwork. M. Royers assured me that, as a rule, this work was well done. In the building of new streets and of new houses the town authorities had dealt with many cesspools, and they were surprised to find that the surrounding earth was remarkably clean. The earth had not been examined under the microscope nor had it in any way been analysed; but to the naked eye there seemed to be no contamination. There were also a great many cesspools in Antwerp that were entirely surrounded by wine and other cellars, and yet there were no complaints. People piled up their choicest wines against the walls of cesspools without perceiving anything unpleasant. Whenever a cesspool is emptied the authorities avail themselves of the opportunity to ascertain that it is properly built, and if last year's cholera epidemic has done no other good it has, in any case, greatly stimulated the work of inspection. I mentioned last year that from January, 1888, to January, 1892, the authorities took proceedings against householders and others for sanitary defects in 1002 instances. From Jan. 1st, 1892, to the month of August of this year no less than 881 actions have been taken so that defects in the construction of cesspools might be remedied. Indeed such activity is now being displayed that the creation of a Bureau d'Hygiène has been decreed. The Bureau will be situated in the Marché au Lins and will be under the management of Dr. Williams, president of the Local Sanitary Commission. It will simplify the forms of procedure against insanitary dwellings and centralise the sanitary services.

Finally, in dealing with Antwerp, one has to recognise the fact that the public health of the town has greatly improved. In 1874 the death-rate was 26·7 per 1000; in 1875 it was 27 per 1000; in 1888 it was 22·4 per 1000; in 1889 it was 21·9 per 1000; and it may be now set down as being about 22 per 1000. Some fifteen years ago the average duration of life was thirty-seven years and three months; it is now equal to forty-five years and two months. This very notable improvement has been brought about by the creation of the waterworks, which benefit at least a section of the community; by the pulling down of old slums and the building of magnificent new thoroughfares; by the covering over of offensive watercourses or ditches; and by the rebuilding of many sewers, the laying of new sewers, and the better flushing and cleansing of all the sewers. To these special improvements must be added the greater attention which is devoted to all that concerns the preservation of health—e.g., to scavenging, to disinfecting, and to the cleanliness of the houses, streets, courts and alleys. Thus has the death-rate of Antwerp been reduced, in spite of its numerous private wells and its cesspools; nevertheless the town must not rest satisfied with this. There will be no real security until the cesspools are completely abolished.

CHOLERA IN TURKEY.

WE learn that cholera occurred suddenly in Constantinople under peculiar circumstances. For months past stringent quarantine has been observed in Constantinople in respect of all vessels arriving from places suspected of having cholera, and even from places to which no suspicion of cholera has attached. Steamers before being allowed into the Dardanelles or Bosphorus have been sent to Clazomene or Sinope to undergo quarantine. Arrivals by land have also been quarantined at the frontiers. The health of the town has been excellent all through the summer, there being even less summer diarrhœa than usual. Under these circumstances, on Tuesday, Aug. 29th, a case of cholera suddenly occurred in the Turkish lunatic asylum at Scutari. This institution is situated on a hill, is well aired and ventilated and is isolated from the neighbouring houses by courts on all sides. The inmates, about 400 of both sexes, never go out or receive visitors, being chiefly Moslem paupers from the provinces. The subject of the attack was a eunuch, formerly in the Imperial Palace, who had been for seven months detained in the asylum, and who owing to his past rank lodged in the best part of the building. He was at once taken to the isolation ward. The following day another lunatic was attacked in quite another ward, distant from the first; and the next day a third case occurred. In the three cases the algide stage set in immediately and they all proved fatal within a few hours of each other on Thursday, Aug. 31st. A post-mortem examination of the bodies was made on the following morning with results entirely significant of cholera. Five more cases were reported on Sept. 1st and were isolated. All were seized with cramp, vomiting and purging. They had been previously in

good health, and located in different wards, all being suddenly seized in the same manner, and their prostration speedily becoming extreme.

In Galata, on the European side of the Bosphorus, several fatal cases have occurred. One was that of a Greek captain who was taken to the French Hospital and died there, and the others were those of poor women unconnected with each other and not living in the same neighbourhood. As will be seen by examining the figures in another column the outbreak has been a very severe one. Neither in the case of the asylum at Scutari nor in the Galata cases, except perhaps in the case of the Greek captain, can any contamination from any cause whatever be traced. The asylum at Scutari and the house in Galata, where the cases occurred, were isolated by cordon and the medical men who were found in attendance were shut in. It was contemplated to remove all the inmates of the asylum to the barren islet of Pisakerim outside the Dardanelles; but whether this has been done is doubtful.

THE LATEST CHOLERA INTELLIGENCE.

THE following tables embody the latest information regarding the cholera in England at the time of our going to press:—

GRIMSBY.

Date—September.	4th.	5th.	6th.	7th	8th.	9th	10th.	11th.	12th.	13th.
Cases of Cholera .	5	15	17	13	167	72	62	6	1	1
Deaths	1	1	1	1	1	2	1	1	2	2
Cases under treatment	22	22	38	50	66	70	69	73	38	—

CLEETHORPES.

Date—September.	4th.	5th.	6th	7th.	8th.	9th	10th.	11th.	12th.	13th.
Cases of Cholera .	—	—	1	—	2	9	—	3		1
Deaths	—	1	—	—	1	—	—	—	—	—
Cases under treatment	—	2	—	—	19	21	18	21	16	14

HULL.

Date—September	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th	12th.	13th.
Cases of Cholera.	2	1	22	35	18	10	4	5	6	4
Deaths	1	2	2	1	1	—	—	—	—	—
Cases under treatment	—	—	—	—	4	4	4	3	2	2

The above cases include cholera and choleraic diarrhœa at the various places. It is further to be noted that a fatal case of cholera occurred at Hurst (urban), near Ashton-under-Lyne, in a man who had arrived from Cleethorpes. At Ashbourne 8 deaths occurred out of 13 cases, all of which are stated to have arisen in one court in eight days.

At Middleton 4 choleraic attacks have occurred between Aug. 31st and Sept. 8th, with 3 deaths, but no cases have been recorded subsequently to that date. At Mitcham, Surrey, 1 case of cholera has arisen, and at St. Bartholomew's Hospital a bargeman has been admitted with all the symptoms of the disease from Long Reach on the Thames. The results of the bacteriological examination in the last two cases have not been conclusive, however, of the nature of the disease.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6149 births and 3980 deaths were registered during the week ending Sept. 9th. The annual rate of mortality in these towns, which had declined from 22·8 to 20·6 per 1000 in the preceding three weeks, further fell last week to 20·1. In London the rate was 18·9 per 1000, whilst it averaged 21·0 in the thirty-two provincial towns. The lowest rates in these towns were 13·0 in Halifax, 13·2 in Plymouth, 14·4 in Croydon, 14·8 in Bristol and 15·6 in Portsmouth; the highest rates were 23·3 in Bradford, 23·5 in Manchester, 29·9 in Blackburn and 30·2 in Hull and in Sunderland. The 3980 deaths included 916 which were referred to the principal zymotic diseases, against 1026 and 1006 in the preceding two weeks; of these, 564 resulted from diarrhœa, 96 from whooping-cough, 86 from diphtheria, 65 from scarlet fever, 62 from "fever" (principally enteric), 39 from measles and 4 from small-pox. The lowest death-rates from these diseases were recorded in Croydon, Bristol, Plymouth, Cardiff and Halifax; and the highest rates in Burnley, Blackburn, Hull, Sunderland and Gateshead. The greatest mortality from measles occurred in Blackburn; from scarlet fever in Leicester and Derby; from whooping-cough in Norwich, West Ham and Swansea; from "fever" in Hull, Portsmouth, Wolverhampton, Sunderland and Salford; and from diarrhœa in Sunderland, Wolverhampton, Blackburn, Gateshead, Burnley and Hull. The 86 deaths from diphtheria included 65 in London and 5 in West Ham. Two fatal cases of small-pox were registered in West Ham and 2 in Bradford, but not one in London or in any other of the thirty-three large towns; 121 cases of this disease were under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, against 209, 183 and 144 at the end of the preceding three weeks; 24 new cases were admitted during the week, against 21 and 8 in the preceding two weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital, at the end of the week, was 2883, against 2891, 2894 and 2884 on the preceding three Saturdays; 310 new cases were admitted during the week, against 341 and 303 in the preceding two weeks. The deaths referred to diseases of the respiratory organs in London, which had declined from 203 to 138 in the preceding three weeks, rose again to 150 last week, but were 9 below the average. The causes of 53, or 1·3 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Cardiff, Oldham, Bradford, Newcastle-upon-Tyne and in eleven other smaller towns; the largest proportions of uncertified deaths were registered in Leicester, Liverpool, Huddersfield and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had increased from 18·5 to 20·7 per 1000 in the preceding three weeks, further rose to 20·8 during the week ending Sept. 9th, and exceeded by 0·7 per 1000 the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 12·0 in Perth and 14·5 in Aberdeen to 23·3 in Paisley and 26·4 in Dundee. The 585 deaths in these towns included 81 which were referred to diarrhœa, 20 to whooping-cough, 16 to "fever," 9 to diphtheria, 7 to scarlet fever, 3 to measles and not one to small-pox. In all, 136 deaths resulted from these principal zymotic diseases, against 158 and 116 in the preceding two weeks. These 136 deaths were equal to an annual rate of 4·8 per 1000, which was slightly above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of diarrhœa, which had been 95 and 67 in the preceding two weeks, rose again to 81 last week, of which 26 occurred in Glasgow, 23 in Dundee and 17 in Edinburgh. The 20 deaths from whooping-cough were within one of the number recorded in the preceding week, and included 14 in Glasgow and 5 in Dundee. The deaths referred to different forms of "fever," which had been 10 and 9 in the preceding two weeks, rose again to 16 last week, of which 9 occurred in Glasgow and 5 in Paisley. The 9 fatal cases of diphtheria corresponded with the number in the preceding week, and included 3 in Glasgow, 3 in Dundee and 2 in Paisley. The deaths from scarlet fever, which had been 8 and 5 in the preceding two weeks, rose again to 7 last week, of which 4 occurred in Glasgow and 2 in Leith. The deaths referred to diseases of the respiratory organs in these towns, which had been 66 and 72 in the preceding two weeks, declined again to 60 last week, and slightly exceeded the number in the corresponding week of last year. The causes of 57, or nearly 10 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 21·8 and 29·1 per 1000 in the preceding two weeks, declined again to 21·9

during the week ending Sept. 9th. During the past ten weeks of the current quarter the death-rate in the city averaged 26·6 per 1000, against 21·0 in London and 18·0 in Edinburgh. The 147 deaths in Dublin during the week under notice showed a decline of 48 from the number in the previous week and included 36 which were referred to the principal zymotic diseases, against numbers increasing from 31 to 48 in the preceding three weeks; of these 36 deaths, 21 resulted from diarrhœa, 8 from "fever," 4 from whooping-cough, 2 from measles and 1 from diphtheria; but not one from small-pox or scarlet fever. These 36 deaths were equal to an annual rate of 5·4 per 1000, the zymotic death-rate during the same period being 3·8 in London and 3·9 in Edinburgh. The fatal cases of diarrhœa, which had increased from 12 to 36 in the preceding three weeks, declined again to 21 last week. The deaths referred to different forms of "fever," which had been 3 and 6 in the preceding two weeks, further rose to 8 last week. The 4 fatal cases of whooping-cough were within one of the number recorded in the preceding week. The 147 deaths registered in Dublin last week included 42 of infants under one year of age and 26 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons showed a marked decline from those recorded in the preceding week. Four inquest cases and 2 deaths from violence were registered; and 41, or more than a fourth, of the deaths occurred in public institutions. The causes of 12, or more than 8 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING AUGUST, 1893.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality during August in each of the forty-one sanitary districts of London. With regard to the notified cases of infectious disease in the metropolis during last month, it appears that the number of persons reported to be suffering from one or other of the nine diseases in the accompanying table was equal to 17·2 per 1000 of the population, estimated at 4,305,551 persons in the middle of this year. In the preceding four months the rates increased from 10·5 to 19·3 per 1000. Amongst the various sanitary districts the rates last month were considerably below the average in Paddington, Kensington, Fulham, Chelsea, Hampstead, St. Martin-in-the-Fields, and Woolwich; whilst they showed the largest excess in St. Pancras, Bethnal Green, Whitechapel, St. George-in-the-East, Limehouse, Mile End Old Town, Poplar, and St. George Southwark. The prevalence of small-pox in London showed a further marked decline during August, an average of 26 cases weekly being notified, against 134, 89, and 61 in the preceding three months; of the 131 cases notified during last month, 18 belonged to Poplar, 15 to Bethnal Green, 10 to Lambeth, and 8 each to Marylebone, St. Pancras, and Battersea sanitary districts. The Metropolitan Asylum Hospitals contained 129 small-pox patients at the end of August, against 516, 371, and 255 at the end of the preceding three months; the weekly admissions averaged 22, against 117, 75, and 50 in the preceding three months. The prevalence of scarlet fever in London showed a slight decline from that recorded in July; this disease was proportionally most prevalent in St. Pancras, Holborn, Bethnal Green, Whitechapel, St. George-in-the-East, Limehouse, Mile End Old Town, St. George Southwark, and Rotherhithe sanitary districts. The Metropolitan Asylum Hospitals contained 2755 scarlet fever patients at the end of August, against 2511, 2653, and 2800 at the end of the preceding three months; the weekly admissions averaged 321, against 309, 282, and 321 in the preceding three months. Diphtheria showed slightly decreased prevalence during the month under notice; amongst the various sanitary districts this disease showed the highest proportional prevalence in Strand, Clerkenwell, St. Luke, Shoreditch, Bethnal Green, St. George-in-the-East, Limehouse, Poplar, St. Saviour Southwark, St. George Southwark, and Newington. There were 291 cases of diphtheria under treatment in the Metropolitan Asylum Hospitals at the end of August, against 296, 295, and 293 at the end of the preceding three months; the weekly admissions averaged 68, against 64, 70 and 60 in the preceding three months. Enteric fever was proportionally most prevalent during August in Hackney, Clerkenwell, Shoreditch, Limehouse, Mile End Old Town, and Poplar sanitary districts. The Metropolitan Asylum Hospitals contained 95 enteric fever patients at the end of August, against 38, 86, and 104 at the end of the preceding three months; the weekly admissions averaged 17, against 22 and 16 in the preceding two months. Erysipelas showed the highest proportional prevalence in St. Pancras, Clerkenwell, St. Luke, Bethnal Green, St. George-in-the-East, Limehouse, Poplar, and St. George Southwark sanitary districts. Three cases of puerperal fever were notified during August in Fulham, 3 in Islington, 3 in Hackney, 3 in Poplar, and 3 in Lambeth sanitary districts.

The mortality statistics in the accompanying table relate to the deaths of persons actually belonging to the various metropolitan sanitary districts, the deaths occurring in the institutions of London having been distributed amongst the various sanitary districts in which the patients had previously resided. The distribution of these deaths, and especially of those resulting from zymotic diseases, affords the most trustworthy data that can be secured upon which to calculate reliable rates of mortality. During the five weeks ending Saturday, September 2nd, the deaths of 8344 persons belonging to London were registered, equal to an annual rate of 20·2 per 1000, against 17·7, 20·1, and 21·8 in the preceding three months. The lowest death-rates during August in the various sanitary districts were 10·7 in Hampstead, 13·6 in St. George Hanover-square, 14·7 in Lewisham (excluding Penge), 15·0 in Kensington and in St. Martin-in-the-Fields, 15·4 in Plumstead, 16·9 in Hammersmith, and 17·7 in Battersea; the highest rates were 26·7 in Clerkenwell, 28·2 in Whitechapel, 28·4 in St. George Southwark, 33·7 in St. George-in-the-East, 34·3 in Limehouse, 34·8 in St. Olave Southwark, 36·4 in Strand, and 36·5 in St. Luke. During the five weeks of August 1822 deaths were referred to the principal zymotic diseases in London; of these, 810 resulted from diarrhœa, 298 from diphtheria, 223 from whooping-cough, 200 from measles, 180 from scarlet fever, 99 from different forms of "fever" (including 95 from enteric fever and 4 from ill-defined forms of continued fever), and 12 from small-pox. These 1822 deaths were equal to an annual rate of 4·4 per 1000, against 2·3, 4·1, and 5·5 in the preceding three months. Amongst the various sanitary districts the lowest zymotic death-rates were recorded in St. Martin-in-the-Fields, Hampstead, Westminster, St. George Hanover-square, Kensington, St. Giles, and St. Olave Southwark; and the highest rates in Strand, Clerkenwell, St. Luke, Shoreditch, St. George-in-the-East, Limehouse, and St. George Southwark. Twelve fatal cases of small-pox were registered in London during the month under notice, being slightly above the corrected average number in the corresponding periods of the preceding ten years; of these 12 deaths, 3 belonged to Mile End Old Town and 2 each to Marylebone, Bethnal Green, and Newington sanitary districts. The 200 deaths referred to measles were within 12 of the average number; amongst the various sanitary districts this disease showed the highest proportional fatality in Clerkenwell, St. Luke, Shoreditch, Bermondsey, and Camberwell. The 180 fatal cases of scarlet fever were 66 above the corrected average number; this disease was proportionally most fatal in Chelsea, St. Pancras, Strand, St. Luke, St. George Southwark, and Plumstead sanitary districts. The 298 deaths referred to diphtheria were considerably more than double the corrected average; amongst the various sanitary districts this disease showed the highest proportional fatality in St. Luke, St. George-in-the-East, Limehouse, Poplar, Wandsworth, and Lewisham. The 223 fatal cases of whooping-cough exceeded by 56 the corrected average; this disease was proportionally most fatal in St. Luke, Limehouse, St. George Southwark, Lambeth, and Wandsworth sanitary districts. The 99 deaths referred to different forms of "fever" exceeded by 35 the corrected average number; amongst the various sanitary districts the highest "fever" death-rates were recorded in St. Luke and Poplar. The 810 fatal cases of diarrhœa were 182 below the average; this disease showed the highest proportional fatality in Strand, Holborn, St. Luke, Shoreditch, St. George-in-the-East, Limehouse, St. Olave Southwark, and Woolwich sanitary districts. In conclusion, it may be stated that the mortality in London during August from these principal zymotic diseases was 9 per cent. above the average.

Infant mortality in London during the month under notice, measured by the proportion of deaths under one year of age to births registered, was equal to 196 per 1000, and slightly exceeded the average; the lowest rates of infant mortality were recorded in Fulham, Hampstead, St. Giles, City of London, Bermondsey, and Wandsworth; the highest rates in Strand, Holborn, St. Luke, Shoreditch, St. George-in-the-East, Limehouse, St. Olave Southwark, and Woolwich sanitary districts.

MONTHLY ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON.—AUGUST, 1893.

(Specially compiled for THE LANCET.)

Sanitary areas.	Estimated population in the middle of 1893.	Notified Cases of Infectious Disease.										Deaths from Principal Infectious Diseases.												
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
LONDON	4,305,551	131	4199	1346	3	382	22	31	966	19	7099	17·2	12	200	180	293	223	—	95	4	810	1822	4·4	8344	20·2	196
West Districts.																								
Paddington	129,277	4	74	17	—	5	1	1	24	—	126	10·9	1	6	3	1	8	—	2	—	19	40	3·5	205	17·8	189
Kensington	167,038	1	97	24	—	7	—	—	22	1	162	10·1	—	2	7	8	8	—	1	—	25	51	3·2	241	15·0	191
Hammersmith	103,674	—	75	27	—	8	1	—	20	1	132	13·3	—	—	7	10	5	—	2	—	18	42	4·2	168	16·9	207
Fulham	103,075	1	62	13	—	6	1	3	17	3	106	10·7	—	2	—	7	5	—	1	—	19	34	3·4	179	18·1	148
Chelsea	98,114	—	49	24	—	6	—	—	21	—	100	10·6	—	8	10	2	6	—	2	—	12	40	4·3	182	19·3	177
St. George Hanover-square	75,825	2	65	16	—	4	—	—	11	—	98	13·5	—	—	2	4	—	—	1	—	12	19	2·6	99	13·6	182
Westminster	54,761	1	54	3	—	5	—	—	3	—	68	13·0	—	—	1	—	3	—	—	—	6	10	1·9	102	19·4	191
St. James Westminster	23,573	2	13	6	—	2	—	—	4	—	27	11·8	—	—	—	3	1	—	2	—	2	8	3·5	45	19·7	182
North Districts.																								
Marylebone	139,546	8	86	20	—	9	—	1	33	—	167	12·5	2	5	7	5	6	—	3	—	17	45	3·4	276	20·6	191
Hampstead	73,949	—	34	20	—	3	—	2	4	—	63	8·9	—	—	1	2	1	—	1	—	8	13	1·8	76	10·7	158
St. Pancras	234,025	8	379	82	—	20	—	2	67	1	559	24·9	—	9	18	21	8	—	4	—	39	99	4·4	449	25·0	178
Islington	328,608	3	385	84	—	22	—	3	72	—	569	18·1	—	16	11	19	16	—	4	—	67	133	4·2	588	18·7	204
Hackney	240,177	7	259	84	—	32	—	3	39	—	424	18·4	—	5	3	16	12	—	9	—	41	86	3·7	413	17·9	192
Central Districts.																								
St. Giles	38,511	—	20	7	—	5	—	—	10	—	42	11·4	—	—	—	2	—	—	2	—	8	12	3·2	87	23·6	162
St. Martin-in-the-Fields	13,911	—	3	1	—	—	—	—	—	—	4	3·0	—	—	—	—	1	—	—	—	1	1	0·7	20	15·0	174
Strand	23,508	1	26	10	—	2	—	—	6	—	45	20·0	—	—	5	2	3	—	—	—	6	16	7·1	82	36·4	329
Holborn	32,646	1	47	3	—	4	—	—	8	—	63	20·1	—	2	1	—	2	—	1	—	9	15	4·8	71	22·7	275
Clerkenwell	65,163	2	66	29	—	9	1	—	28	—	135	21·6	—	20	1	2	3	—	2	—	10	39	6·2	167	26·7	217
St. Luke	41,406	—	42	28	—	3	1	—	21	—	95	23·9	—	13	6	5	4	—	4	—	16	48	12·1	145	36·5	245
City of London	35,383	—	32	6	1	3	1	—	7	—	49	14·4	—	2	2	1	1	—	—	1	3	10	2·9	70	20·6	136
East Districts.																								
Shoreditch	123,425	1	110	53	—	20	1	—	34	2	221	18·7	—	18	2	12	7	—	5	—	40	84	7·1	286	24·2	242
Bethnal Green	129,625	15	209	78	—	13	2	—	57	2	367	29·5	2	6	7	11	2	—	4	—	37	69	5·6	294	23·7	187
Whitechapel	75,163	1	125	28	—	9	—	1	16	—	180	25·0	—	4	6	8	2	—	1	—	17	38	5·3	203	28·2	236
St. George-in-the-East	45,182	1	59	20	—	3	—	1	14	—	98	22·6	—	—	3	5	4	—	—	—	14	26	6·0	146	33·7	249
Limehouse	57,386	—	83	50	—	13	—	—	20	—	166	30·2	—	1	1	14	6	—	3	—	15	40	7·3	189	34·3	298
Mile End Old Town	108,006	4	145	33	—	28	—	2	24	—	236	22·8	3	4	2	5	1	—	4	—	24	43	4·2	213	20·6	177
Poplar	168,876	18	190	105	—	43	6	3	58	—	424	26·2	1	2	11	20	6	—	14	—	36	90	5·6	378	23·0	216
South Districts.																								
St. Saviour Southwark	26,823	2	18	14	—	4	—	1	6	—	45	17·5	—	1	—	3	—	—	2	—	9	13	5·1	57	22·1	169
St. George Southwark	59,952	3	99	45	—	5	—	—	24	—	176	30·6	—	5	9	4	9	—	2	—	17	46	8·0	163	28·4	225
Newington	117,430	2	123	65	—	5	—	—	29	—	224	19·9	2	3	4	12	6	—	—	—	32	59	5·2	259	23·0	221
St. Olave Southwark	12,861	—	10	2	—	—	—	—	6	—	18	14·6	—	—	—	1	—	—	—	—	3	4	3·2	43	34·8	260
Bermondsey	84,244	3	58	21	—	8	1	1	17	—	104	13·9	—	11	4	5	5	—	1	—	16	42	5·2	192	23·8	163
Rotherhithe	39,764	5	50	17	—	2	—	—	10	—	84	22·0	—	1	2	4	4	—	1	—	6	18	4·7	80	21·0	177
Lambeth	280,567	10	245	83	2	17	6	3	60	8	434	16·1	—	7	3	13	23	—	2	2	52	102	3·8	551	20·4	205
Battersea	160,033	8	149	44	—	7	—	—	44	1	255	16·6	—	13	5	11	7	—	2	—	25	63	4·1	274	17·7	187
Wandsworth	169,379	5	123	62	—	10	—	1	38	—	229	14·1	—	5	3	23	16	—	2	1	23	73	4·5	259	15·9	141
Camberwell	246,837	6	208	30	—	17	—	1	41	—	303	12·8	—	22	11	11	15	—	5	—	39	103	4·4	450	19·0	193
Greenwich	173,349	—	129	41	—	10	—	2	19	—	201	12·1	—	3	8	11	9	—	4	—	36	71	4·3	316	19·0	170
Lewisham (excluding Penge)	76,593	1	77	20	—	7	—	—	16	—	121	16·5	—	—	3	9	1	—	3	—	8	24	3·3	108	14·7	178
Woolwich	41,794	3	29	2	—	1	—	—	2	—	37	9·2	1	—	1	—	3	—	—	—	12	17	4·2	86	21·5	273
Plumstead	94,192	1	98	17	—	5	—	—	14	—	135	14·9	—	4	10	5	4	—	1	—	12	36	4·0	139	15·4	181
Port of London	—	1	1	—	—	5	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 36 cases of membranous croup.

† Including deaths from membranous croup.

Correspondence.

"Audi alteram partem."

"THE REPORT OF THE SELECT COMMITTEE ON MIDWIVES' REGISTRATION."

To the Editors of THE LANCET.

SIRS,—I am sorry once more to be forced, in self-defence, to reply to Dr. Rentoul's insinuation against myself and the institution with which I am connected, but as he asserts in THE LANCET of Sept. 9th that what he calls an "admission" of mine proves the accuracy of his statement I wish to remind your readers what the statement was to which I objected. Dr. Rentoul is alleged to have said before the Commission that at one time he was connected with a hospital in Liverpool where they were able to say that there had been no deaths during the year from puerperal fever, but this was done by the removal to the medical ward of the women who were likely to die from that cause after a certain period, and that this manœuvre was done by order of the visiting medical staff. When asked if it was in Brownlow Hill Workhouse Dr. Rentoul would rather not go any further. He said it was some years ago, but he knew it to be a fact.

If this statement refers to me, as there is no doubt now it was intended to do, it is a most serious allegation against my character, and the trick of offering £5 to anyone who would prove his statements before the Royal Commission to be untrue will not relieve Dr. Rentoul from the obligation of either proving or withdrawing the allegation. According to the plain meaning of his statement I "cooked the books" at the Liverpool workhouse to make the lying-in mortality appear less than it was. Until Dr. Rentoul either withdraws or substantiates this charge he lies under the odium of making what seems to me a wanton, malicious and unprovoked attack upon a fellow-practitioner. The records of these wards are perfect and every facility will be given him to prove a statement which I hereby declare to be absolutely untrue. I leave the matter in the hands of my professional brethren to remember the charge, and weigh the proofs of it whenever Dr. Rentoul furnishes any. I am giving him plenty of time, but he will have to reply one way or the other before I have done with the matter.

Since making these statements Dr. Rentoul has been interesting himself in the workhouse, and finds something wrong with the death certificates for 1891. The death certificates are filled up here, as elsewhere, by the resident medical staff, and I never know what they have signed; but I have examined the records in regard to these cases since I saw Dr. Rentoul's letter, and here are the facts extracted from the lying-in book, which should have been "cooked" so as to conceal the existence of such patients in the Lying-in Ward, if Dr. Rentoul's statements have any foundation:

M. M—— was originally a medical patient in the last stage of phthisis. She aborted, as phthisical patients sometimes do, and was removed by mistake to the lying-in ward. In a week she was returned to the medical ward and died eighteen days after of phthisis.

A. M—— was a hemiplegic patient who had a premature stillborn child. She recovered from the labour completely and died of a cerebral abscess over a month afterwards. A post-mortem examination showed an old-standing abscess of the brain that had burst shortly before death and produced encephalitis. The abdominal and genital organs were perfectly normal.

I do not know why the certifier should mention an accidental abortion on a certificate of advanced phthisis or a premature labour in a hemiplegic case a month afterwards. The certificates as given did not in the least invalidate the statistics of the Registrar-General, but rather made them more valid by not complicating them with a circumstance which had nothing to do with the cause of death. The instruction Dr. Rentoul refers to is only a "suggestion"—very wise and desirable no doubt, but not one the certifier is legally bound to follow. The month is not expressly stated to be one of thirty-one days, but merely a month. The change of name in the third case was no doubt due to the "unfortunate" disclosing her true identity in the presence of death. Although she died in the surgical wards the puerperal cause of death is explicitly stated. Dr. Rentoul's "mare's nest" proves conclusively that in 1891 no manœuvring was going on, as the suppression of these cases from the lying-in register would have rendered them impossible to be traced.

The heavy sick-rate to which Dr. Rentoul calls attention is only apparent. The isolation ward is used for the convenience as well as the safety of the patients, and they are isolated for all sorts of reasons, such as syphilis, itch, filth, gonorrhœa, ophthalmia &c. as well as fever. I am sure he will feel gratified that in spite of so many depraved and unclean patients amongst the clients of this ward the results are so good, even under the fire of his hostile criticism. Lastly, although it appears strange to Dr. Rentoul, it is perfectly true that we can tell from our books quite readily "how many of these patients went back into the city and so were lost," and we can give him the addresses of all these "lost" ones and he can find out if he wishes how many died elsewhere within thirty-one days or any other length of time that suits him.

In conclusion, I have to thank a long series of able house-surgeons, lady superintendents, our venerable midwife and her assistants for their zeal and care in looking after not only the statistics, but the lives of these patients. Dr. Rentoul's onslaught on the statistics of the hospital has failed, in spite of the 10*s.* 6*d.* expended to invalidate them; if the Registrar-General's are all as good they are perfectly reliable.

I am, Sirs, yours truly,

Liverpool, Sept. 12th, 1893. W. ALEXANDER.

To the Editors of THE LANCET.

SIRS,—Mr. Clement Sers' letter, published in your issue of the 9th inst., seems to call for some reply, if only to refer once more to the "facts" which militate against his "mere opinion." He appears to regard the fourteen or fifteen opinions he has given in his letter as facts, and to look upon the facts adduced before the Select Committee on Midwives as merely the opinions of the witnesses. It was clearly shown before the Committee that trained midwives had a remarkably low puerperal death-rate amongst their patients. How, then, can legislation which has for its object, amongst other things, the increase of the numbers of trained midwives act in the direction of increasing the mortality, as Mr. Sers suggests it does? He evidently has had no experience either of crowded factory, or of widely-scattered agricultural districts, or he would not speak so slightingly of the relief afforded medical men by trained midwives. In a few places, at any rate, medical men have established trained midwives to relieve them from the annoyance they were subject to in having to travel many miles for an inadequate fee, or often for none at all. In many parts lay people have established trained midwives on account of the horrors perpetrated by untrained ones. This is being systematically done, to my knowledge, on a large scale in two widely-separated counties at the present moment. As regards the question of increase or decrease in the actual numbers of midwives which will be one result of legislation, evidence was given of a case in point where two trained midwives had "ousted" a considerably greater number of untrained ones, and the same has occurred elsewhere. The danger of a decrease in the number of "Gamps" lies, not in the decrease in their total number, but in their total capacity for work, and it is evident that a woman who not only gives up the whole of her time to attend labours, but has also some amount of skill, can properly attend more cases than perhaps half-a-dozen women who are for the greater part of their time doing other work. In one part of his letter Mr. Sers says that there are numbers of medical men who conduct midwifery cases at the same rate as uncertificated midwives, and that the notion of midwives relieving them is preposterous, although he also speaks of places which are sparingly provided with medical men. He is evidently not aware that a country midwife is often paid 2*s.* 6*d.* for attendance during labour and confinement, and that for that sum and what little food she can get she has also to mind the other children, do the cooking and all the other household work. A country medical man's fee is, I believe, rarely under £1 1*s.*, and a nurse has also to be paid. Relieving orders in the country are rarely, if ever, given prior to a confinement, being granted only when the untrained midwife gets into a difficulty and after the parish medical officer has attended the labour as being an urgent case. But then Mr. Sers speaks from his opinions and not from facts. The difference of opinion which he speaks of is due not so much to uncertainty about the results of legislation as from ignorance of untrained midwives and their work. The following is an example. In getting together evidence for

the Committee, and in reply to a letter from me on the subject, a general practitioner who had been for many years established in a large country town said that he had a number of untrained midwives in practice near him, but that they always sent for assistance when anything went wrong, that he knew of no cases of malpraxis and consequently saw no necessity for legislation. Shortly after this another medical man wrote to me, quite independently, relative to the terrible state of things in this same neighbourhood, and said that a local farmer had been so much impressed by what he had seen that he had collected a sum of money and had established a trained midwife, and, I believe, very successfully. I cannot but compare Mr. Sers with the medical man who was ignorant of what occurred in his own neighbourhood.

I should like to ask him what amount of knowledge he himself usually acquires when he attends a natural labour. He fears that medical men will lose their knowledge if it is not kept up by attending such cases, but he forgets that our leading obstetricians never see them except, as one told me, when he attends the wife of one of his colleagues. They are, of course, exceptional men; but, although I have kept notes of nearly every confinement I have ever attended, I find that I learn little except when I collate the cases, and even then am pretty sure to find the fact noted in one or other of the text-books on the subject. How can a natural labour assist one in the high forceps operation, for example? In other branches of the profession one is not always dissecting or studying practical physiology, and yet one is not considered ignorant on this account. Mr. Sers might as well talk of the opportunities of studying children which we waste in not turning ourselves into children's nurses. In asking why certificated midwives have not already superseded "Gamps," Mr. Sers shows he has not grasped either the magnitude of the question or the newly risen demand amongst the richer classes for midwives as monthly nurses, nor does he know the extreme poverty, ignorance and conservatism of the class attended by "Gamps," which add so many difficulties to the problem.

May I point out to Dr. Atthill that the proposal to place all midwives now in practice on a midwives' register has been abandoned for that contained in Clause 3 of the report.

I am, Sirs, yours truly,

ROWLAND HUMPHREYS.

Fellows-road, South Hampstead, Sept. 11th, 1893.

"THE NERVOUS SEQUELÆ OF INFLUENZA" OR "APYRETIC INFLUENZA."

To the Editors of THE LANCET.

SIRS,—I have read Dr. Gowers's philosophical and most instructive lecture, your own able leading article and the admirable letter of Dr. Wilks with the deepest interest. They one and all form valuable additions to the somewhat obscure literature on this subject. Nevertheless, I would ask you to allow me to make a few remarks, from the standpoint of my individual experience, on each of them. I am thoroughly in accord with Dr. Wilks when he says in his letter that "the nervous symptoms of influenza constitute a very essential part of the complaint." That they are, strictly speaking, "primary" is, I venture to think, doubtful, for surely there must be some antecedent cause, some subtle poison to produce so profound an effect on the nervous system. Then as to there ever being an entire absence of fever, to which you allude in your leading article, I am, I confess, somewhat sceptical. I have often in cases of influenza failed to detect any present fever, and the temperature has remained throughout persistently subnormal, but I have always been able to obtain some presumptive evidence of a previous short period of high temperature. It is one of the most characteristic features of influenza that the temperature rapidly rises and then comes down "with a run" and remains permanently low. Whatever may eventually prove to be the contagium of influenza, there can be no doubt that the nervous system bears the full brunt of the attack, producing a general neuritis. This is why the symptoms attributed to it are so protean and often contradictory, and this is why influenza—the "influence"—(though certainly vague)—is not so bad a name as many others suggested; at any rate it expresses what I believe to be a fact, that during the prevalence of any epidemic of influenza, when the air is presumably laden with pathogenic matters, all concurrent diseases are more or less influenced by it and assume an adynamic type.

The nervous symptoms, which Dr. Gowers speaks of as the "sequelæ" of influenza, exist from the very beginning of the attack (as Dr. Wilks clearly points out), and are a very essential part of the disease, though they undoubtedly become much intensified later on. The extreme nervous prostration is, indeed, almost the only symptom of true influenza which is never absent—I say almost, because I have never yet failed in a typical case to detect some pneumonic dulness, which, however, is often very limited in extent and is generally unaccompanied by "lung symptoms," and consequently often escapes notice. The nerve prostration, the passive pneumonia, and the sweats are almost invariable accompaniments of true influenza. The persistent heart weakness and intense, almost craven, nervous depression, are also most characteristic, and probably depend on actual microscopic changes in the muscular fibres of the heart and in the nerves, such as are known to occur in anthrax and diphtheria. So persistent are the sweats and nervous prostration that I have often diagnosed a previous influenza, of which the patient has had no suspicion; indeed, I am convinced that many more people have had typical influenza than is supposed, though, on the other hand, many protest that they have suffered from it when they have only had a severe cold. In my experience the catarrhal form of influenza has been the most rare, the lungs and intestinal tract suffering the most, though severe rheumatic pains are just now very prevalent. It is curious how influenza "hits you when you are down," how prone it is to attack those who are worn with work and worry, the old, the feeble, the diseased, how it seizes on the "point of least resistance," how it wakes into activity any dormant mischief of a damaged organ and fans the flame of latent disease; and thus the already undermined citadel of life succumbs to the attack.

I am, Sirs, yours faithfully,

CHARLES EGERTON FITZGERALD, M.D.

Folkestone, Sept. 11th, 1893.

"MEDICAL MEN AND THE OVERCROWDING OF THE PROFESSION."

To the Editors of THE LANCET.

SIRS,—In the last issue of THE LANCET you deplore the overcrowding of the profession. Will you allow me to point out that if medical men would cease to employ unqualified assistants and only engage those who are qualified there would be work for all those who are registered. It would be an excellent thing if the General Medical Council would wrestle with this important matter at their next session and at once declare that any medical man who retains the service of an unqualified person who is not a *bonâ-fide* medical and registered student studying as a pupil will be, if brought before them, declared guilty of infamous conduct. Their present declaration is not strong enough and its tone is not sufficiently clear to be understood by all. A medical man only a short time since who had a branch surgery three miles away from his house under the charge of an unqualified assistant was indignant with me for venturing to suggest to him that this was a case of covering, and hundreds of men fail to understand this term. Cases of qualified men with unqualified assistants of double their age—men who have been assistants for years and yet are assumed to be "pupils"—are come across constantly. It is impossible, of course, to destroy this evil, or rather fraud, at once. It is a distinct fraud on the public, especially where the attendance of the unqualified assistant is charged for, as it so often is, and perhaps it is not generally known that to so charge is distinctly illegal, and no sums for such attendance can be recovered by law. It is no answer to say that unqualified assistants are so much better than qualified: that is absurd. I daresay they are cheaper, but at any moment they may involve their principals in a collision with the law. The reason why so much quackery is rampant in England is that the public find unqualified practice even amongst the ranks of the qualified, and it is difficult, therefore, for them to see any virtue in medical education and diplomas. It is grossly unfair to the public and still more unfair to the newly qualified medical man that this evil should continue, and the longer it exists the worse will be the state of the medical profession. If the practice continues it will be impossible to find work for those who are qualified. Practices will be more and more in the hand of a few registered men who will "use" dozens of unqualified assistants. There is another matter to which I wish to call attention. There is a great lack of properly trained male nurses in this country, and for a certain

class of cases—bachelors in chambers and men living at their clubs when ill—male nurses are indispensable. Nursing is a profession which is not considered to be a degrading one amongst women of the highest position, and there is no reason at all why the work of male nurses should be looked upon as inferior. Why, then, should not our students who fail to reach the desired haven of qualification look to nursing as a profession and earn good salaries instead of becoming some practitioner's drudge and unqualified assistant in the country or East-end? The training of male nurses leaves much at present to be desired; there is no hospital, with the exception of the military ones, where I find these being educated. It would be an excellent thing if one or more of our large general hospitals were to turn their attention to this waste of material and give men the opportunity of learning nursing by placing some of the male wards under suitable supervision for their training.

Massage is much more paying than unqualified assistantships, and with good general nursing knowledge a number of men who sink annually would be saved for useful work. This, however, is a side issue; the main point of my letter is to draw attention to the fact that by admitting so many unqualified men into our professional life and work we are committing not only a fraud upon the public but a deathblow to ourselves, and the sooner this is realised the better.

I am, Sirs, yours faithfully,

Longridge-road, S.W., Sept. 12th, 1893. A. G. BATEMAN.

NORWEGIAN ICE.

To the Editors of THE LANCET.

SIRS,—In your issue of July 29th THE LANCET Special Analytical Commission published the results of a chemical and bacteriological examination of five specimens of natural ice from Norway. In reference to this report I beg now to present a few remarks concerning the production of ice for export from Norway and the origin and composition of the water used. The greater part of ice exported from Norway is obtained from small lakes and ponds (sometimes artificially dammed) situated on the hills surrounding the fjords of the south and south-east coasts of Norway. Ice being to some extent of but little mercantile value it will not bear any great expense in transport, so that the lakes or dams are conveniently situated as close as possible to the seaside in order that the blocks may be shipped directly by means of a shoot or viaduct. For this reason ice from the larger and more distant lakes in our populated districts is seldom exported. The reference made by the Commission therefore to the "immense ice-field of Norway" is hardly correct, at least in this connexion.

The ice is cut during winter or in early spring, and if not shipped at once it is stored in suitable storehouses by the waterside. As the lakes are situated in solitary and secluded sites the ice should be proof against contamination due to decaying animal matter originating from human abodes or cultivated fields. As a matter of fact the examination of the Commission has shown that the ice in chemical respects was satisfactory. From the fact that the lakes are generally situated on granite or archæan schist they contain but small quantities of solid matter, as a rule no more than from two to three grains per gallon. Part of the total solids or organic matter originates from the sources of the water in the mountain marshes. An examination made by myself has proved the absence of nitrites, and as to ammonia I have found it only in very minute quantities.

On a bacteriological examination of the water of these lakes there will, as a rule, be found (by means of plate cultures with slightly alkaline gelatin) no more than about fifty colonies of the ordinary species of water bacteria. Yet, as I have shown in two articles,[1] during the melting of the snow, which generally occurs in the beginning of April, a considerable augmentation in the number of bacteria takes place; they may, even in mountain lakes lying remote from human habitation, exceed 1000 per cubic centimetre. This increase of bacteria in the water, the volume of which depends on the year's amount of snow and the rapidity with which the melting takes place, has scarcely any influence upon the numbers of bacteria in the ice, as it is usually cut before the thaw commences. There is, however, another circumstance which causes even ice taken from the purest mountain sources to contain a considerable number of bacteria. As is mentioned in the report of the Commission, the ice seems under certain circumstances to possess a peculiar faculty to collect bacteria, so that there may, even in the purest glacier ice, be found as great a number of bacteria as has been found in the two specimens examined by the Commission.

I make these observations because I wish to point out the necessity for not arriving at any hurried conclusion from a bacteriological examination, especially if its results show no relation to the chemical one. One of the principal points from which a correct judgment for drinking water can be formed will always be the knowledge of the respective localities from which the water is obtained; and, regarding this question, it is a fact that the situation of the lakes from which Norwegian ice is obtained is almost without exception a sufficient hygienic guarantee against contamination from their surroundings. As to artificial ice it is, of course, indisputable that it can be produced in a satisfactory manner on sanitary grounds That this, however, is not always the case is, for instance, evident from the researches of A. Heyroth in "Der Reinlichkeitszustand des Natürlichen und Künstlichen Eises."[2]—I am, Sirs, yours respectfully,

L. SCHMELK,
Analytical Chemist to the Board of Health, Christiania.

*** It is of course well recognised, as would be gathered from the report of our Commissioners, that unless actual pathogenic organisms are found on bacteriological examination no absolute verdict as to the danger to be apprehended from the use of any sample of water or ice can be given. The number of organisms and the number and character of species—i.e., moulds, liquefying and non-liquefying bacteria &c.,—however, afford such evidence as should lead us to make a most careful examination of the chemical composition, source, kind of storage and similar matters; and until these are found to be satisfactory the water and ice should be looked upon with suspicion. Dr. Schmelk's assurances on several of these points will be received with satisfaction by many of our readers, as indicating that some care is being exercised by those who are engaged in collecting ice for our markets.—ED. L.

"INFECTIOUS DISEASES IN BRADFORD."

To the Editors of THE LANCET.

SIRS,—I have read with much interest your annotation concerning the above, together with Dr. Evans' reply thereto, in THE LANCET of Aug. 26th and Sept. 9th respectively. The grave administrative errors of the Sanitary Committee of Bradford, and the intimate relationship of the same to the history of infectious diseases in the town during the past twelve months, call for far fuller and freer discussion than I can venture to ask space for in your valuable columns. Dr. Evans asserts that about 270 beds are at present available for the purpose of treatment of infectious diseases in Bradford. This may be so, but it is a well-proven fact, the demonstration of which from time to time has been attended by most appalling circumstances, that the aggregation of patients suffering from these diseases in unsuitable hospitals far from effecting the beneficent purpose aimed at, can become a menace to the public safety far graver even than if the patients had remained to be treated in their own homes. I am, Sirs, yours truly,

C. KNOX BOND,
formerly Medical Superintendent at Bradford Fever Hospital.

Robert-street, London, N.W., Sept. 13th, 1893.

TREATMENT OF MYXŒDEMA.

To the Editors of THE LANCET.

SIRS,—In his interesting account in THE LANCET of Sept. 9th of a case of myxœdema treated by thyroid extract Dr. George Elam asks some practical questions about this treatment of the disease. With regard to the duration of the treatment I have several times pointed out that it must in one form or another be continued for the rest of the patient's life.[3] This is evident when we consider that

[1] Centralblatt für Bakteriologie, vol. iv., p. 195; vol. viii., p. 104.

[2] Mittheilung des Kaiserlichen Gesundheitsamts, 1888.

[3] THE LANCET, May 13th, 1893.

in a patient suffering from myxœdema the thyroid gland has lost the power of supplying its normal secretion to the blood, and that by this method of treatment we make good this loss by keeping up a continuous supply of the secretion from one of the lower animals. We have no evidence to show that the patient's thyroid gland regains any of its secretory activity, for in no case, as far as I am aware, have the symptoms failed to reappear when the treatment has been entirely suspended for three or four months. I have found, however, that when, as in Dr. Elam's case, the patient has passed through the first stage of the treatment and the symptoms have practically disappeared it is advisable to diminish the dose to the smallest quantity which will maintain the improved condition. As a rule a daily dose of from three to ten minims of the extract is all that is required to do this. Pains are not uncommon during the first stage of the treatment and they would probably disappear in this case if the dose was diminished. In two of my cases there has been a discharge from the mouth at night but it has disappeared under the thyroid treatment.

I am, Sirs, yours faithfully,

GEORGE R. MURRAY, M.B. Camb.

Newcastle-on-Tyne, Sept. 12th, 1893.

DEATH REGISTRATION.

To the Editors of THE LANCET.

SIRS,—In reference to the registration of stillbirths, I wish to draw attention to the futility of the committee's recommendation if all cases reported as such and not certified by medical men are not examined by a qualified man with a view to verifying that the child was under seven months and born dead. I trust it will not be competent for registrars to accept the statements of midwives or women present at the birth on these points.—I am, Sirs, yours faithfully,

St. Helens, Lancs., Sept. 12th, 1893. E. J. GILLERAN.

AMERICAN MEDICAL SCHOOLS.

To the Editors of THE LANCET.

SIRS,—In the article in the Students' Number of THE LANCET on the above subject I have failed to find any mention even made of the greatest university on the American continent, viz., Michigan University, situated at Ann Arbor, Michigan, which had 2788 students, last year's representing 44 States and territories, including 24 students from Massachusetts and 6 from Connecticut, the homes of the Harvard and Yale Universities respectively. There were 8 students from Japan, 34 from Canada, 5 from England, 4 from Germany, besides representatives from China, the Bermudas, Bulgaria, Scotland, Mexico and other foreign countries. There were 344 medical students, besides 63 in the homœopathic school, unfortunately a department of the University. The dental school had 189 students. This latter is acknowleged to be the model dental school of America. The course in the medical schools extends over four years of nine months each. They had here the first established and best equipped bacteriological laboratory in the New World. The chemical laboratory is probably the most extensive in existence. Though the clinical facilities are not what might be found in large cities, still they are sufficient. The hospital accommodates about 150 patients. I found no mention either of Johns Hopkins University, Baltimore, where a graduate of even the London University might pick up something.

I am, Sirs, yours truly,

Sept. 12th, 1893. AMERICAN M.D.

*** The article upon American Medical Education did not claim to deal with every medical school in America. It was distinctly stated that only a few schools were mentioned, but that those few possessed the right to be considered typical of the others. Under these circumstances the omission of an account of Michigan and Johns Hopkins Universities cannot be construed as a slight upon either admirable institution.—ED. L.

DRS. SYMINGTON of Brampton and Richard Brown of Blaydon have been recipients of testimonials from their ambulance pupils.

THE SANITARY CONDITION OF BOMBAY DURING THE RECENT RIOTS.

(FROM A CORRESPONDENT.)

THE condition of an Oriental city during a period of war or of civil commotion can never be properly described without reference to its sanitary state and the effect of the events on its conservancy arrangements. The statement in the history of a siege that after a time sickness or plague broke out conveys little to the mind of the ordinary reader, who does not know from experience in the East how quickly decomposing refuse will pollute the air. Shortness of provisions, accompanied by hard labour and anxiety, will bring about sickness if sufficiently prolonged, but in an Eastern city where conservancy work has been more or less interrupted or even stopped for a short time filth diseases will promptly make their appearance, and once fairly started their progress is one of terrible rapidity.

In India the work connected with the removal of sewage is performed by men and women belonging to some of the lowest castes, and known as a class by the name of Halalcores. Amongst Hindus this work is hereditary, whilst in Mohamedan communities it is done by the lowest class of labourers, who are not bound by any tie to the work. As a class, Halalcores are remarkably healthy and vigorous, and are a striking illustration of how men in the course of generations may be bred to resist influences that are generally considered of the most insanitary nature. What the weeding-out process has cost will never be known, as it dates back beyond the period of vital statistics. The prejudices of all other classes regarding conservancy work in general, and regarding the removal of nightsoil in particular, are so strong that natives of India will endure extremes of air pollution rather than take any active measures to help themselves.

Sewers, to any considerable extent, only exist in Madras, Calcutta and Bombay, but they do not correspond with the English type of sewer, as they are not, as a rule, connected directly with the houses. Most of the houses discharge their sullage and much of their sewage into open gutters, or "gullies" as they are called, lying between the houses. These gullies are frequently not more than eighteen inches wide, and although they are swept out daily it is impossible to keep them clean. In Bombay, owing to the absence of control during the building of the older parts of the town, the houses are crowded together in a manner unknown elsewhere. A house may have a frontage of from twenty to thirty feet, a depth of from eighty to a hundred feet and a height of four or more stories. The greater number of the windows are on the sides and they are frequently above a gully not more than three feet wide; and into this gully is thrown every kind of refuse from kitchens and from living and sleeping rooms. These rooms receive all their light and air through the gully and the people who live and multiply in them exist through a process of natural selection that has gone on for centuries. A very large part of Bombay is built in the manner described and shelters a population whose density will be best appreciated by means of comparison with that of other large cities. The extreme density of the population of London is 222 persons per acre, that of Calcutta being 208 and Bombay 760. In houses per acre London has a maximum of 22, whilst Bombay possesses 35. Generally speaking the greatest density of population in London is less than any one out of twelve sections of Bombay, which average 458·57 persons per acre. In such neighbourhoods the wind rarely penetrates, the mean temperature is 30° F. higher than in England, and whilst in London the average moisture in the air amounts to 0·51 lb. per 1000 cubic feet, that of Bombay averages 1·135 lb. In consequence of these conditions the rapidity of decomposition of organic matter is extremely rapid in Bombay, and any waste matter, animal or vegetable, that lies about for even twenty-four hours becomes a serious nuisance. Hence it is necessary that the cleansing of the town should be regular and more frequent than in Europe.

Sanitary works were originally introduced in Bombay on European models and the authorities of to-day are a good deal hampered with arrangements which do not suit their purpose, but which cannot be at once discarded. Amongst these the most notable are the small branch drains leading to houses, which are a continual source of trouble on account of

the silt, which chokes them, involving the opening of the ground and constant repairs. This silt is composed largely of sand used for scouring cooking pots. Bombay has a very copious water-supply, amounting to forty-two gallons and a half per head of the population; but as a very considerable part of the town is unpaved and undrained there is a constant saturation of the surface, which aggravates organic decomposition. There are many miles of lanes, ranging from three feet to eight feet wide, which give the only access to the dwellings of the inhabitants, and of these a large proportion use the lanes for all natural purposes. The excreta are collected in baskets by Halalcores, but the urine soaks into the soil. In spite of this state of things public latrines are looked on with disfavour and are generally opposed by property owners, even in the localities that need them most. This aversion arises doubtless from experience of common privies under native management.

The Bombay Halalcores, or sweepers, as they are familiarly called, are nearly all Hindus, whose work, as I have said, is hereditary. They convey the nightsoil daily from the houses of Hindus and Mohamedans alike to depôts on the large sewers, and they were amongst the first victims of the fury of the Mohamedans in the riot which began on Friday, Aug. 11th, and which only died out on the 15th after much bloodshed and destruction of property. Being obliged by the nature of their work to go about singly, they became easy victims to the hordes of ruffians of the lowest class, who, armed with bludgeons and stones and yelling "Deen! Deen!"[1] swept through the streets and beat or murdered every stray Hindu they met. Within three hours the whole of the Halalcore service in the native quarters of the town was suspended and remained in suspense for from seventy-two to eighty hours. About 250 men and women took refuge in the Nall Bazaar municipal stables for twenty-six hours, and the Halalcore barracks were full of people for four days. On Saturday, the day following the outbreak, the cotton mills were closed and many thousands of Hindu mill hands armed themselves with stout bamboos and proceeded to avenge the attacks of the Muslims on their temples and friends. The Hindus having now the advantage in numbers, their adversaries suffered severely and a large number of Mohamedan conservancy men had to go into hiding for four days. The disturbance took place in an interval of fine weather during the monsoon and the thermometer ranged from 77° F. to 83° F., the ground having previously been saturated with rain water. Everything was thus favourable to rapid decomposition and the result was soon apparent to the police, military and volunteer patrols, who were on duty night and day. The hospitals and gaols began to be crowded, and the Hindus even attacked the funeral parties of their adversaries, who had on one occasion to abandon the dead bodies in the street. All shops were closed, all business was suspended and already many of the important daily food-supplies had ceased to arrive at the markets, the dealers not daring to expose themselves to violence and pillage. Domestic servants could no longer do the marketing in safety and thousands of people had to go on a short supply of food. In the meantime the number of killed and wounded increased with great rapidity, the majority being taken to private houses, where they remained without medical attendance, and many bodies lay in-doors until, when in an advanced state of decomposition, they were removed under military escort to be burnt or buried. The European soldiers had not been more than two days on duty amongst the slums of the native town when many were suffering from diarrhœa, dysentery and sunstroke, and it was reported with jubilation amongst the belligerents that the Feringhi soldiers would soon be all sick and that they would then be at liberty to follow their inclinations. The ferocity and brutality of the contest were such as have always characterised religious antipathies when carried to excess, and the recent experiences in Bombay, arising from the sudden antagonism of two sections of the population that had been living in apparent harmony, provide much food for reflection when viewed in connexion with the sudden and complete breakdown of the conservancy system. It is true that the circumstances could not very well have been provided against, and they are certain to recur unless the means of repression are much more swift and severe than are usual with the British Government. As the habits of the people form the basis of all sanitary systems, it is useless to look to Europe for models on which to base the work in Bombay. A population of which 716 live on an acre of ground with many of the habits of domesticated cattle can only be trained very slowly to habits of decency, and the necessary means include a sufficient number of well-kept public latrines, strict police supervision and a magistracy that will effectively support the Health Department. All these things are so far defective in Bombay, and when, in addition, the populace in a fit of blind fury attacks and illtreats a class of men whose services are as necessary and important as those of the police, the question of conservancy becomes suddenly and very seriously complicated. The establishment of a large number of public latrines and urinals was the signal for the wholesale robbery of every piece of metal that could be carried away. The handles of flushing valves and the gratings of urinals were carried off by the hundred; and in spite of all the types that have been devised the Bombay authorities are still in search of a latrine and a urinal suited to the habits of the lower classes of the town. The Halalcore service will never be entirely abolished in India. It may in time, and with wise management, be greatly modified; but with a population that cannot be trusted with house connexions and of which a considerable proportion, mostly women and children, will not use public latrines, the health department of a city like Bombay, with about 816,000 inhabitants, must be a permanent source of anxiety.

The records of mortality for the week of the riots have just been published, giving the first correct idea of the proportion of deaths that may be charged to the street fighting, directly or indirectly. During the week in question there were 681 deaths and in the previous week 474, equalling a death-rate of 40·5 per 1000 per annum. The rate of the corresponding week last year was 31 per 1000, and the average for the past five years 29·25 per 1000. The increase of mortality during the week of rioting is thus 30·6 per cent. greater than that of the corresponding week last year, and 36·2 per cent. more than the average for the past five years.

[1] "Deen" (faith), the war-cry of the Muslims in a religious quarrel.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Our Poor-law Guardians.

THE city of Manchester, for Poor-law purposes, is under the jurisdiction of three boards of guardians, not to mention the Jewish board, which is a private benevolent institution for the benefit of the Hebrew portion of the population. Under ordinary circumstances the three boards of guardians perform their functions without friction or disagreement with one another and presumably to the satisfaction of the Local Government Board, for one seldom hears of complaints from the central authority as to the manner in which the poor in the three unions of Manchester are attended to. At their last two meetings, however, the guardians of the Manchester township had under consideration the enlargement of their casual ward accommodation, in order to enable them to meet the apparently increasing needs of the township in this particular. In the course of debate a senior member of this board somewhat severely criticised the action of the Prestwich guardians, who, according to him, had not been so anxious to provide for the accommodation of their portion of the city tramp population as the Manchester township guardians thought they should have been. On Thursday, the 7th inst., at the meeting of the Prestwich board, the statements of the Manchester township guardians at their previous meeting were severely commented upon, the chairman remarking that his board had always shown every disposition to provide ample accommodation for their own poor, although they naturally did not care to be saddled with the guardianship of the poor belonging to their well-to-do colleagues of Manchester. The misunderstandings, however, are not likely to be serious; the Poor-law inspector, Mr. Jenner-Fust, appears to have been acting the part of peace-maker between the boards in question, and the result will probably be that both bodies will considerably increase their accommodation for a very troublesome although at present apparently inevitable class of paupers.

The Diarrhœa Season.

Notwithstanding the very considerable fall in the temperature during the last fortnight, epidemic diarrhœa still continues to prevail in Manchester and its vicinity. The deaths from diarrhœa, which in the two preceding weeks had been 44 and 51, fell to 39 last week, and were more than twenty above the corrected average for the thirty-sixth week

of the year. As in recent previous weeks, the majority of the deaths were those of infants under one year of age. During the last week, however, eight deaths have been reported from choleraic diarrhœa, six of them being in the persons of adults and almost all of them being rapidly fatal cases. Having regard to the presence of Asiatic cholera in certain towns on the east coast, this recent development of diarrhœa prevalence will certainly cause anxiety to the medical officer of health, who cannot be otherwise than fully aware of the facilities for spread which certain slum districts would afford in the event of any cholera-stricken tramps finding their way into Manchester. It is exceedingly unfortunate that, at the very time when, above all others, it is essential that the drains, back alleys and slums should be flushed with abundance of water, the town should be on the verge of a water famine, the water-supply being turned off from eight every evening until next morning. According to the newspaper reports, which appear to be duly "inspired," there are not more than twenty-nine days' supply in the corporation reservoirs. Obviously, therefore, the use of large quantities of this drinking-water for flushing purposes cannot be thought of; but fortunately the Woodhead reservoirs are not the only source of water-supply. For the purposes of street cleansing, sewer flushing &c., there is an almost unlimited supply of water in the new red sandstone formation which underlies the city. Surely this might be pumped to the surface and utilised at the present critical juncture.

Salford and Unhealthy Dwellings.

The Salford corporation are evidently in earnest with regard to the demolition of certain unhealthy areas which for years past have been notoriously unfit for human habitation and which ought to have been pulled down long ago. At their last meeting about forty houses in Arlington-street, Pea-street and Withington's-court were reported to the council as being unfit for habitation. The council, after a discussion, during which some members still appeared to be anxious to save the tumble-down property referred to, decided to support the Health Committee and to apply for an order to close and demolish the whole of the houses included in the representation of that committee, the Mayor significantly remarking that he hoped to hear no more of such attempts to stop the committee's work. At their meeting last week the Salford corporation had also under their consideration the action (or inaction) of the Rivers Mersey and Irwell Conservancy Board, and after some severe strictures had been made by one or two of the Progressive members a resolution was carried asking the Local Government Board to cause a local inquiry to be made.

Sept. 12th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

The Water-supply of Newcastle.

THE low state of the water reservoirs from which Newcastle and Gateshead are supplied is causing our authorities and inhabitants much concern. Newcastle is supplied, and as a rule is well supplied, from a series of lake-like reservoirs in Northumberland, and these had fallen so low by the end of August that the supply to the inhabitants was necessarily restricted as a measure of prudence. There is still another source, however, which is open to objection for drinking purposes, and that is the Tyne; in its higher reaches the water company has power to pump a supply from the river when the available supply from the reservoirs falls below a certain measure, and this is now being adopted, at least for the supply of steam for our works and factories. The objection to the Tyne water is that it is not free from sewage contamination. A meeting of Tyneside medical officers of health has been held and they have warned employers of the risk of allowing their workpeople to use this Tyne water, at least without first boiling it.

The Health of Sunderland.

The returns of the medical officer of health (Mr. Wood) for Sunderland show that the condition of the borough is not satisfactory; 78 deaths had occurred in the week, 14 from diarrhœa. The rate is 30·3 per 1000; the death-rate consequently exceeds the rate of births, 20 per 1000, infantile diarrhœa being very prevalent.

West Hartlepool: Importation of Foreign Rags.

Dr. S. Gourley, the medical officer of health for West Hartlepool, in his last report refers pointedly to the risks incurred by the importation of foreign rags. He considers this foreign rag trade to be a most dangerous one at this time of the year. The rags, he says, are landed in the borough without any efficient disinfection, and he suggests that the town council should petition the Home Office against their importation.

Carlisle.

The handsome bequests made by Mr. Edward Nelson, of Moor Row, to the Cumberland Infirmary, Carlisle, and the Cumberland and Silloth Convalescent Institution, are to be turned to practical account forthwith. The committee of the infirmary have in contemplation the establishment of a cancer ward, and the Convalescent Institution hopes to complete their male ward. Our local papers state that the will of the late Lord Decies has been proved at a gross personalty of £40,000. The testator, amongst other numerous legacies, bequeaths an annuity of 200 guineas to Mr. T. E. Hornby of York, M.R.C.S., for his care and attention. Mr. Hornby is also named as one of the executors.

Handsome Bequests to Durham Hospitals.

The late Mrs. Mary Hunter, of South Shields, whose will has just been proved, amongst numerous bequests to charitable and religious institutions has left £100 to the Ingham Infirmary, South Shields, and has also stipulated that one-half of her residuary estate is to be given to the said infirmary. By the will of the late Mr. John Snowball, of the North-road, Durham, the sum of nearly £5000 has been left to the Durham County Infirmary. Mr. Snowball was formerly in business as a cartwright in the city of Durham. The money is held in trust during the lifetime of the deceased's widow.

Recovery of the Drowned.

Mr. Coroner Proud, at an inquest held last week in a case of drowning, pointed out that according to the evidence the body could only have been a few minutes under water; people had been restored after a longer submersion, and had this unfortunate man been taken out of the water at once and the proper means used he might have been restored.

Blyth.

A new infectious diseases hospital has been erected at Blyth at the instance of the Blyth port sanitary authority. It is a large and commodious building of corrugated iron on a brick foundation. The residential part of the building consists of six rooms and is attached to the middle ward, the largest of the three, and is arranged in such a manner that the attendants will have no difficulty in reaching any part of the building where their services may be required. The death-rate of Blyth is at present very high.

The Late Small-pox Outbreak in West Durham.

At a recent meeting of the Lanchester Joint Hospital Board Dr. George Renton stated that since July 4th fifteen patients had been discharged from the fever hospital, and that he believed small-pox had now been about stamped out, as there had been no fresh cases in the Lanchester district since Aug. 4th, but six fresh cases had been noted in the district last week.

Newcastle-on-Tyne, Sept. 13th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Public Health, Cholera &c., at Glasgow.

FIVE cases have within the last few days been sent to Belvidere Fever Hospital under suspicion of being of the nature of true Asiatic cholera; only one of these cases, however, was at all severe, and in this instance bacteriological examination showed that the disease was of the ordinary British type and not Asiatic. The patient is recovering.

Small-pox at Glasgow.

The small-pox epidemic, which has prevailed in Glasgow for about a year, may now be said to be at an end, thanks to the energy of our sanitary authorities, who were aided by the intelligent support of the town council. The latter body had recently to announce a substantial addition to the municipal tax for sanitary purposes on account of expenditure incurred in fighting small-pox, and it is greatly to the credit of the local rulers of Glasgow that not a single voice was raised to question the propriety of the expenditure. The number of cases in Glasgow during this epidemic (extending from the end

July, 1892, to June, 1893) has been 444, with 32 deaths. The last case was reported on June 21st and there has not been another one within the municipal boundaries since that date.

Vacancies in the Medical Schools at Glasgow.

There are no fewer than four vacancies in the teaching staff of the various schools in Glasgow: the chair of Midwifery in the University, vacant by the resignation of Professor Leishman; the chair of Chemistry in St. Mungo's College, vacant by the death of Professor James Milne; the chair of Materia Medica in Anderson's College Medical School, rendered vacant by the resignation of Professor Alexander Napier; and the chair of Physics in the same college, owing to the resignation of Professor Freeland Fergus.

Sept. 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Water-Supply of Dublin.

IN consequence of the exceptionally dry summer, the quantity of water stored in the Roundwood Reservoir for the use of the citizens of Dublin and many of the adjoining townships has become so seriously lessened that, unless rain falls soon, a water famine is dangerously near. The Waterworks Committee have been obliged to discontinue watering the public streets and have otherwise minimised the use of water for public purposes. The borough surveyor has recommended that the Vartry water should be turned off the left 27-in. main in the city and the filtered canal water from the fifth lock turned on. It has been arranged that this course shall be adopted on Sept. 18th, unless in the meantime a copious rainfall should occur. The supply to the townships will also be made intermittent. As showing the dryness of the season, it may be noted that, according to a register kept at Fassaroe, near Dublin, the rainfall for the six months ending Sept. 1st was less than the average by about 50 per cent., or nearly 9 in. The actual fall of rain in the six months was 8·95 in., whereas in an ordinary season, calculated on an average of forty years, it would be 17 83 in.

Health of Ireland: June Quarter.

The births amounted to 28,301 and the deaths to 20,306. The birth-rate was 0·1 per 1000 under the average rate for the June average. The public health, as measured by the mortality quarter of the past ten years and the deaths 1 8 below the returns, was very satisfactory. The general death-rate shows a decline equivalent to 9 per cent. There were a few local outbreaks of zymotic diseases, but no extended prevalence of such diseases, as is shown by the low death-rate for the country at large, being equivalent to a decline of 15 per cent as compared with the average for the second quarter of the ten years 1883–92. Measles caused 311 deaths, or 164 over the number for the previous quarter; scarlet fever, 97, or 4 over the number; typhus fever, 73, or a decrease of 11; whooping-cough, 268; and enteric fever, 128, or 65 under the preceding month. Forty of the deaths occurred in the Dublin registration district. Compared with the returns of pauperism for the corresponding quarter of 1892, there was a decrease of 212 in the average number of workhouse inmates on Saturdays during the quarter, and a decrease of 2181, or 3 6 per cent., in the average number of persons on out-door relief.

Lunacy in Ireland.

The forty-second annual report of the Inspectors of Lunatic Asylums in Ireland has now been published. The total number of the insane in establishments on Jan. 1st last amounted to 17,124, the total consisting of 644 private patients, 16 331 paupers and 149 criminals. As contrasted with the previous year, the number of the insane under care has increased by 436, an increase which is almost the same as that for the year preceding—viz., 437—and almost double that for the year before—225. These numbers do not include 5 Government patients residing at the Stewart Institution or the insane residing in private dwellings or wandering at large. The returns for the past thirteen years—1880 to 1892 inclusive—show that the number of the insane has increased from 249 per 100,000 of the population in 1880 to 369 per 100,000 in 1892. If to this be added the number of the insane wandering at large, according to the Census return of 1891, the number would be found to amount to 476. The inspectors are of the same opinion now as they expressed in the forty-first report—namely, that the large increase of lunacy has been absolute as well as relative. Those who contend that, though the total number of the insane under care has gradually increased, this increment is apparent only, and not real, attribute it to various causes, such as (1) the accumulation of insanity from year to year owing to the low death-rate in Irish asylums as compared with the rate of mortality amongst the general population; (2) the drafting into Irish asylums of a greater proportion of the lunatics wandering at large; (3) the inaccuracy in past times of the returns of the insane who were not under care in any public institution, but who now go to swell the apparent increase of insanity; (4) the extension of the term insanity, which at present embraces many diseases and disturbances of the mental faculties—forms of disease which would not in olden times have been returned under the heading of insanity or have been considered to be suitable for treatment in a lunatic asylum; and (5) the diminution of the population by emigration, which increases the relative number of the insane to the total population. In reply to these objections, the inspectors remark that, although these causes would account for a very large relative increase of insanity, still they adhere to their opinion that they are not sufficient to explain the great increase of lunacy which has taken place of late years in this country. This opinion is strengthened if one examines the admissions to district asylums since 1880, when one finds an almost uninterrupted yearly increase of the number of first admissions in the face of a declining population. Of 12,133 insane residents in district asylums on the last day of 1892, 995 patients died during the year, giving a proportion per cent. to daily average number resident of 8·3. In 198 instances post-mortem examinations were made, and it is a gratifying fact to record that year by year the number of these examinations, which are of so much importance for the protection of the insane and for the furtherance of the scientific study of insanity, show a gradual increase.

Cork Hospital Saturday.

This year—the third year of the fund—the collections will be made on the last Saturday of this month. The first year there were collected £670; last year this sum was increased to £949; and the committee fully expect at least £1000 as this year's result. The accounts for the past year showed a balance to credit of £35 6*s*. It was decided by the committee to obtain the coöperation of the medical men and clergymen in the different country towns within a radius of twenty or thirty miles of the city, so as to help them in the charitable movement

Ballincollig Waterworks.

The new waterworks recently erected for supplying Ballincollig, county Cork, with water were formally opened last week. Two natural springs found in the stream coming from the Maglin river were diverted into a reservoir two miles and a half from Ballincollig. The reservoir is a naturally formed basin covering five acres and a half; at its northern side is a gap 120 ft. wide, and across this was formed a dam 25 ft. high and 125 ft. wide at the base, tapering to 10 ft. at the top. This reservoir is capable of holding 15,500,000 gallons. A cast-iron outlet tower, 6 ft. in diameter and 25 ft. high, fitted with three valves placed at different heights, discharges the water from the reservoir into the filtering chambers, which are three in number. The valves in the tower are regulated by hand wheels from the top and access is gained to them by an iron lattice girder-bridge, which stretches from the top of the dam to the top of the outlet tower. At the side of the reservoir opposite the dam is the intake, provided with a 2 ft. diameter sluice-valve, worked by a screw and lever handles. In times of flood, the valves being shut down, the storm waters are turned into a by-wash 6 ft. wide, being paved at the sides and bottom. Seven-inch diameter pipes bring the water into Ballincollig.

Pharmaceutical Prosecution.

A trader named Leonard was on Tuesday last summoned by the Pharmaceutical Society of Ireland for retailing a poison—viz., Hayes' essence of linseed—contrary to the Pharmacy Act, Ireland, he not being qualified to do so. The old saying that "doctors differ" was well exemplified in the evidence given by medical gentlemen and chemists for and against the alleged poisonous nature of the substance sold. Professor Tichborne, for the prosecution, stated that he had analysed the compound and had found amongst other drugs morphine and chloroform, He thought that two bottles, each containing twelve drachms, of the essence of linseed, if

swallowed by a child, would poison it, for there was nothing in the specification of the patent which would antagonise the morphia. Mr. Auchinleck, F.R.C.S., also for the prosecution, took a more serious view of its dangerous nature than Professor Tichborne and stated that one drachm would, if taken, probably kill a child, and that two drachms would most certainly do so. For the defence, Mr. Shaw, Fellow of the Chemical Society of England, deposed that the compound was prepared under his supervision at Stockport and that each bottle contained the ten-seventy-second of a grain of morphia, one and a quarter drops of sulphuric ether, a little rectified spirit and eleven and a quarter drops of chloroform, whilst the other elements would act as emetics. Mr. Foy, F.R.C.S., stated that even if an overdose was taken the result would be harmless, and if the entire contents of one bottle were swallowed he did not believe that it would have the effect of poisoning a child. None of the poisons contained in the compound stood alone, and any effect they might produce was counteracted by the presence of other ingredients which were antagonistic. Sir Charles Cameron also was of opinion that the compound was quite harmless owing to the presence of the various antidotal drugs which produced the effect of an emetic. The magistrate will not give his decision until the 12th prox.

Sept. 12th.

Obituary.

SEVERIN WIELOBYCKI, M.D. EDIN., L.R.C.S.

SEVERIN WIELOBYCKI, who died on Friday the 8th inst., at his residence, 1, Acacia-road, St. John's Wood, was a graduate in medicine of the University of Edinburgh and held the diploma of the Royal College of Surgeons of Edinburgh. These qualifications he obtained in 1841 after ten years of stern privation in the Modern Athens, where he found a refuge after fighting in thirty-six encounters in the Polish war, inclusive of a winter campaign, during which this patriotic officer of cavalry often slept in the saddle in inclement weather. He was the son of a Polish judge and began his collegiate career at Vilna. After a flight in the dead of night he reported himself to the Austrian representative at Cracow. When offered the alternative of America or Great Britain as a compulsory haven he chose the latter. At Edinburgh he taught French, having learned the English language from Walker's dictionary and the newspapers. He was always grateful for the kind sympathy and substantial aid of his professors. He graduated in the same year as Sir Edward Sieveking, Dr. Walter Dickson, Dr. Simon Fitch and Dr. De Wolff of Halifax, in the vicinity of which part of Nova Scotia he practised for some ten years. Thereafter his professional avocation was continued in various places in England and Scotland. He became a naturalised British subject. He was a good linguist, speaking fluently five languages—Polish, Russian, French, German and English. He was a conscientious practitioner, most painstaking and indefatigable. Always an early riser, ever since his retirement from active practice twenty-eight years ago he was to be found winter and summer on the top of Primrose Hill by five o'clock, and until broken down by influenza some three and a half years ago he walked twelve miles a day. He fell a victim to the sequelæ of a third attack of influenza, complicated with severe rheumatic pains and latterly embolism; yet four days before his death he was out for his regular "constitutional," during which he walked down High-street, read the newspaper without glasses (he had never worn them) in St. John's Wood burial ground, and returned home by Wellington-road. He had never consumed tobacco in any form and had been a teetotaler for over sixty years. Previously to suffering from the effects of influenza he was a tall, clean-shaven, active, erect, martial-looking man, with a complexion as healthy and rosy as a girl's. Dr. Wielobycki wrote a few papers on medical topics, served in the Vestry of St. Marylebone and took a lively interest in sanitary matters. It will be remembered that he received a centenarian ovation from the President and Council of the Society for the Study of Inebriety on Jan. 8th last, on his hundredth birthday. He leaves a widow but no family. Dr. Wielobycki was buried at Paddington Cemetery last Monday. Amongst the company assembled at the grave were Dr. Norman Kerr (deceased's medical attendant and friend), Dr. Thos. Morton (Medical Temperance Association), Dr. Johnston (Society for the Study of Inebriety) and representatives of other well-known temperance and kindred societies. Probably the only occasion when a University body congratulated a graduate on finishing a century of life was the official conveyance of the congratulations of the Senate of Edinburgh University read at the centennial reception already referred to.

THOMAS MOIR RAE, M.B., C.M. ABERD.

MANY of our northern *confrères* will hear with regret of the demise of Dr. Rae, the announcement of which event formed the burden of a telegram received by the Rev. A. Spence, the pastor of Udny, the native parish of the deceased. His academical career was not lacking in brilliancy; but the study of medicine early absorbed his devotion, and to that sphere of usefulness his future energies were for the most part confined. Having graduated M.B., C.M., in 1888, he was chosen by Dr. Wilson, always his warm friend, to be his assistant. The experience gained in that position enabled Dr. Rae to compete successfully in 1890 for the appointment of first medical officer of the recently established Imperial East African Company. In May, 1890, he sailed for East Africa, where his professional services and his high personal character were fully appreciated, not only by the company which employed him, but by all who were brought into association with him. He did not escape the fever incidental to the climate, but his good constitution carried him through more than one of such attacks and seemed to give promise of ensuring for him thorough acclimatisation. This hope, however, appears to have been doomed to disappointment. Dr. Rae was only thirty-one years of age.

WILLIAM BRADLEY, M.R.C.S., J.P.

WILLIAM BRADLEY, M.R.C.S., J.P., of Winckley-square, Preston, died on Tuesday, Sept. 5th, from bronchitis, aged seventy-one years. To know him was to love and respect him. Of the older school of medical men, of fine appearance, gentle and considerate, Mr. Bradley was a well-known figure in Preston. Many charities will lose a warm supporter and his numerous friends and patients will deeply mourn their loss.

CHARLES WILLIAM HEATON, F.I.C., F.C.S.

IT is with deep and sincere regret that we announce the death of Mr. C. W. Heaton. He had been ailing and had struggled bravely against ill-health for some time, until at last the end quietly came on Monday last at his residence in Bedford-park. He died from chronic affection of the lungs at the age of fifty-eight. Mr. Heaton was not only a distinguished member of the chemical profession, playing a distinguished *rôle* in his capacity as chemist, but he also fulfilled more or less important but essential duties directly connected with the progress and growth of medical science. He commenced the practical study of chemistry in the laboratory of St. Bartholomew's Hospital in company with several distinguished chemists, amongst whom were Dr. Stenhouse, Professor Kekulè, Dr. Attfield and Professor Tuson. There he was a witness of, and doubtless a participator in, many of the classic experiments of Dr. Stenhouse, and he there had the privilege of being associated with one who has probably given more impetus to the progress of organic chemistry, and especially that section dealing with the structure of the aromatic series, than any previous investigator—we refer to Professor Kekulè, who still lives. It was not long before Mr. Heaton's ability and power as a teacher were recognised He was appointed to the important post of chemical teacher at the Royal Benevolent College, Epsom. The personal interest he took in his pupils was such as to command respect and affection. In short, he was a great favourite with the boys and under his guidance and care chemical study became a pleasure and the irksomeness of laboratory work vanished. So successfully, indeed, did he arouse the interest of his pupils in his beloved science that Epsom College is proud to claim amongst its old scholars some of the foremost chemists of the day, scholars who gained a clear insight into the principles of chemical science during Mr. Heaton's connexion. On Aug. 16th, 1862, Mr. Heaton was appointed to succeed Professor Tuson (on his appointment to the chair of Chemistry in the Royal Veterinary College) as Lecturer on Chemistry in the Medical School of Charing-cross Hospital, an appointment which he held up to the time of his death. Thus he laboured faithfully in the cause of medical science for over thirty years, and notwithstanding the great

number of students that have attended his lectures during this time not one of them was personally unknown to him, and there were none who were not attracted to him by those excellent personal qualities which distinguished one who was in the truest sense "every inch a gentleman." To know Charles Heaton was to love him. Much of the success of his teaching was indeed due to the personal and individual attention which he freely and gracefully devoted to each student. His lectures were lucid, clear and simple in style, and seldom did he undertake an experiment unless he were previously assured that it would succeed. His admirable treatment of the difficult subject of chemical theory in particular appealed tellingly, as will be remembered by all his former pupils, to his hearers, and he possessed the rare, but indispensable, quality of illustrating the most abstruse points in homely and familiar language. Never a stern word escaped him in the theatre; but he was always firm, and when any small breach of discipline did occur, which was seldom, he had a peculiarly happy knack of restoring good humour and feeling. As an instance of this, many old students will remember the occasion on which complaint was made during a lecture of the action of one student towards another. On making inquiry the aggrieved student complained that his neighbour had struck him in the face. Mr. Heaton immediately rejoined, "Then turn to him the other cheek." The effect was instantaneous—good feeling was soon restord; the class smiled approval, which developed into honest laughter, in which the students concerned heartily joined. He was also Lecturer on Chemistry in the London School of Medicine for Women. His literary contributions were chiefly to THE LANCET but he contributed also to the *Saturday Review*, the *Chemical News* and some of the art journals. In his writings he dealt with the subject under consideration with consummate skill, his meaning was clearly conveyed, his argument forcible, and his style attractive. Amongst the important investigations which Mr. Heaton undertook in his professional capacity none were perhaps more ably and exhaustively carried out than his work—a work in which Dr. Frankland, Dr. Tidy, Dr. Dupré and other eminent chemists took part—on the condition of the river Thames in 1882. After several months of practical study on this subject (many of the analytical operations—as, for example, the determination of the oxygen dissolved—being performed on the spot in a boat), he gave his evidence before the memorable Royal Commission in 1882-83 in that clear and lucid manner of which he was pre-eminently a master. Mr. Heaton held many important appointments; he was Examiner in Chemistry to the Royal College of Physicians and to the Royal College of Veterinary Surgeons, he was treasurer to the Society of Public Analysts and an original member of the Institute of Chemistry; he held also the post of Public Analyst to the parish of St. Martin-in-the-Fields. His excellent judgment and tact in matters pertaining to chemistry and his wide acquaintance with industrial pursuits in which chemical operations are involved deservedly secured for him the position of consultant and adviser in certain important commercial concerns, and he was interested to the last in the improved manufacture of coal-gas and more particularly in the purification of gas from noxious sulphur compounds, with the view not only of eliminating the sulphur and thereby putting a stop to one of the worst nuisances attending gas making, but of actually recovering it in the elementary state. Mr. Heaton wrote two elementary works on chemical science both more or less of a popular character; his "Experimental Chemistry" was reissued a few years ago—it is written in his clear characteristic style and is still a favourite text-book with medical students.

Mr. Heaton's rare qualities, personal and professional, gained for him the high esteem and admiration of the editorial staff of THE LANCET, of which he was an active member, and his death is a source of heartfelt sorrow and sincere regret to the colleagues he has left behind. The many kindly acts and good deeds which distinguished his life carry the conviction that he was one who felt that "'tis only noble to be good," for it was in accordance with this precept that he invariably acted.

THE SERVICES.

MOVEMENTS IN THE MEDICAL STAFF.

SURGEON-COLONEL GROVE, having proceeded on leave prior to embarkation for India, has handed over medical charge of the North-Western District to Surgeon-Major Gunning. The following officers have embarked for India in the *Serapis*: Surgeon-Colonel Atkins, Surgeon-Major Armstrong and Surgeon-Captains Morris, E. G. Browne and Holyoake. Brigade-Surgeon-Lieutenant-Colonel Moore will proceed from Malta to India on being relieved by Surgeon-Captain Daly. Surgeon-Captain Baylor has been transferred to Kilkenny, Surgeon-Lieutenant Moore to Cahir and Surgeon-Lieutenant Walker to Tipperary.

ARMY MEDICAL STAFF.

Surgeon-Colonel J. Warren to be Surgeon-Major-General, vice C. D. Madden, retired, Brigade-Surgeon-Lieutenant-Colonel Charles A. Atkins to be Surgeon-Colonel, vice J. Warren, and Surgeon-Lieutenant-Colonel Mathew M. Gallwey, M.D., to be Brigade-Surgeon-Lieutenant-Colonel, vice C. A. Atkins (all dated Aug. 1st, 1893).

VOLUNTEER CORPS.

Artillery: 1st Edinburgh (City): Surgeon-Captain J. J. K. Duncanson, M.D., to be Surgeon-Major (dated Sept. 9th, 1893).—2nd Lancashire: Thos. Stevenson, M.B., to be Surgeon-Lieutenant (dated Sept. 9th, 1893).—1st Worcestershire and Warwickshire: Surgeon-Lieutenant C. H. Barkley resigns his commission (dated Sept. 9th, 1893).

VOLUNTEER MEDICAL STAFF CORPS.

Norwich Company: Surgeon-Lieutenant F. Preston resigns his commission (dated Sept. 9th, 1893).

Medical News.

HEALTH OF BRISBANE.—The report of the Registrar-General of Brisbane for the month of June, 1893, shows that the number of registered births was 180 and deaths 76, as against 179 and 79 in the previous year, the estimated population being now 93,657. The true infantile mortality or death-rate of children under one year of age is below the average. Summing up the outer and inner districts of Brisbane, it is seen to be 9·40 only for the month, whilst the average death-rate of children under one year throughout Queensland during the ten years ending Jan. 1, 1892, was 12·47. The extent to which diphtheria exists in Brisbane is noteworthy. The list of fatal specific or zymotic diseases includes no septic or malarial disorders and diphtheria is the only specific fever. The Government meteorologist, Mr. C. L. Wragge, appends a report from the Brisbane Observatory, showing that the number of deaths for the month of June was 102, the grand mean temperature of the air 57·8 and the mean pressure 30·02.

COLUMBIAN EXHIBITION.—At the congress on Africa held at Chicago in connexion with the Columbian Exhibition Dr. Felkin of Edinburgh read what appears to have been, from the reports received, an exhaustive paper on Disease and Medicine in Africa. The variations of temperature, humidity, altitudes and vegetation—the general influence of climatological factors—were discussed and some interesting conclusions based on observation were reached. In obedience to a law which seems of universal application, the inhabitants of the higher altitudes in Africa seem to have an advantage over those inhabiting low-lying and swampy districts. Dr. Felkin also finds that the diseases of vegetarians and mixed feeders differ. It was pointed out that environment influenced both individuals and nations, and that for this reason a marked difference obtains between the adaptability of residents in the northern and southern parts of the temperate zone for acclimatisation purposes. In this connexion it was shown that regions healthy to natives might be destructive to immigrants. It was likewise shown that much might be done to render insalubrious situations more healthy by attention to water-supply and hygiene generally, but Dr. Felkin was constrained to admit that, when all was done, a permanent residence for the inhabitants of the temperate zone in the low-lying regions of tropical Africa was at present out of the question. The effect on the individual emigrant to the more trying portions of Africa appears to be that which has been generally observed on the migration of the inhabitant of the temperate zone to the tropics—namely, initial well-being of short duration, followed by a relaxation of function and activity in the organs generally. Acclimatisation may require generations. Dr. Felkin's paper was illustrated by a diagrammatic map.

THE Marchioness of Londonderry has consented to open the Sunderland and North Durham Eye Infirmary in the early part of October.

ROYAL BOUNTY.—The Queen has been pleased to send 200 bottles of wine and 40 lb. of cast linen for the use of the patients under treatment at the London Hospital.

A MEMORIAL TABLET has been unveiled at Byker to the memory of the late Mr. Lewis Thompson of this city, who left, it will be remembered, £15,000 under very simple conditions for the relief of the poor-rate in the Byker district of Newcastle.

JOINT ISOLATION HOSPITAL AT TAMWORTH.—The ceremony of opening the above-named institution was performed on the 11th inst. by Mr. Sydney Fisher, who gave the site in memory of his late brother, Mr. Walter Fisher. The patients will, as the chairman of the board explained, be admitted free of charge, and will be allowed to be attended by their own medical advisers. There are two wards in the building, each capable of accommodating ten patients.

FOOTBALL CASUALTIES.—On Saturday last, during a game in the Jubilee Park, Glasgow, a player was charged by an opponent and rendered unconscious; he was taken to the Ross Memorial Hospital, when it was found that "three of his ribs had been torn from the spine," and his recovery is considered hopeless. At Nuneaton, on the same day, in a match between the St. Nicholas and Wesleyan teams, a player sustained a compound fracture of his leg, and in a match between the Stockingford and Hinckley teams a player fractured his clavicle.

PRESENTATIONS.—On the 8th inst. a number of the friends of Dr. Robert Grant of Ellon, Aberdeenshire, assembled for the purpose of presenting him with a token of their esteem in the shape of a gold watch and chain. The presentation was made at a supper convened for the purpose, at which Dr. Fowler took occasion to express the high regard he entertained for Dr. Grant, who had acted as his assistant for five years, and who was about to seek fresh fields and pastures new.—Mr. Herbert Jones, L.R.C.S. Irel., D.P.H. Camb., has been presented with a gold watch and a cheque by some of his patients and friends in Shipley, upon his election to the post of medical officer of health of the borough of Crewe.

MONSALL FEVER HOSPITAL.—On the 11th inst. the members of the board of management of the Royal Infirmary, Manchester, received an invitation to visit the wards and general arrangements of the Monsall Hospital, situated between two and three miles from the infirmary. The local newspapers give a lengthy account of the visit, which appears to have given great satisfaction to the visitors, who were conducted around the various departments by Mr. Simpson, chairman of the Monsall Hospital Committee. When the committee was first constituted in 1877 the establishment consisted of three buildings, containing ninety-eight beds, and three wooden pavilions, containing ninety-six beds and accessories. The institution now comprises eight detached buildings for 380 patients, one detached building for eighty nurses, and separate buildings for medical officers, nursing assistants and other officials, making a total of eighteen detached brick buildings within the enclosed premises. There are also separate wooden pavilions for small-pox and cholera patients.

SHEFFIELD GENERAL INFIRMARY.—In the annual report of this institution to the yearly meeting of the subscribers, which was held on the 8th inst., regret was expressed that the ordinary income had fallen short of the amount of subscriptions to the extent of £1808. The house surgeon's report showed that during the past year 1643 in-patients had participated in the benefits of the charity, whilst 3565 out-patients, 12,559 casuals and 2237 dental cases had received treatment. The number of beds at present available was 200. Regret was expressed both in the report and in the remarks made by the chairman of the weekly board (Mr. J. Marshall, who presided) at the loss the infirmary had sustained by the resignation of Mr. W. F. Favell, the senior surgeon, who for thirty-five years had devoted his time and talents to the interests of the institution. In recognition of Mr. Favell's services three beds had been placed at his disposal for the exclusive use of patients who especially desired to be treated by him. After the usual votes of thanks had been passed the meeting separated.

MEDICAL MAGISTRATES.—Dr. Adam Blackhall of Logie Lodge, Crimond, and Dr. James I. McArthur of Nether Clachforbie, Fisherie, King Edward, have been placed on the Commission of the Peace for the county of Aberdeen.

THE annual dinner of the old students of St. Thomas's Hospital will take place on Tuesday, Oct. 3rd, at 6 30 P.M., at the Hôtel Métropole, when Mr. A. O. Mackellar, F.R.C.S., will take the chair.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Indian Cantonments.

THE report of the committee appointed to inquire into the subject of prostitution and the treatment of venereal disease in the cantonments and elsewhere in India has been presented to Parliament. The committee consisted of five members. A minority of two not agreeing with the conclusions of their colleagues have submitted a separate report. The conclusions of the majority go to show that the present system, incidental practices and statutory rules do not accord with the accepted meaning and intention of the resolution of the House of Commons which, it will be remembered, was "that any more supervision of measures for the compulsory examination of women and for licensing and regulating prostitution in India is insufficient, and the legislation which enjoins, authorises or permits such measures ought to be repealed." The committee held twelve sittings and exhaustively examined seven witnesses, official and non-official. Lord Roberts, who was interviewed on his arrival in this country by representatives of some journals, likewise affords evidence and has written a letter in which he offers a handsome apology to the ladies whose evidence was at one time impugned.

Report of the Commissioners in Lunacy for Scotland.

The thirty-fifth annual report of the General Board of Commissioners in Lunacy for Scotland has been laid before both Houses. It is of a decidedly eulogistic character. All the institutions for the reception of the insane—public, private and State—are spoken of as being in a proper position of working efficiency, more than one—e.g., the Crichton Royal Institution and the Royal Edinburgh Asylum—being selected for warmer commendation. The Commissioners, in noting the growth of the practice, report favourably upon the admission of voluntary patients, regarding it as a useful provision of the law that permits persons who desire to place themselves under care in an asylum to do so in a way unattended by troublesome or disagreeable forms. They consider, and the statistics justify the opinion, that probationary release might be more frequently resorted to than it is, believing that this method of testing the permanency of relief or cure is a sound one. They also approve of giving legal permission to lunatics to reside in private houses and do not think that the sane inmates are exposed to any large amount of risk by the procedure. There are appended to the report: (1) A statistical history of lunatics from 1858 to 1893; (2) the lunacy statistics of Scotland for the year ending Jan. 1st, 1893; (3) the statistics of expenditure; and (4) an account by Dr. Fraser, and another by Dr. Lawson, of their visitations of the private dwellings which receive lunatics.

THE HOUSE OF LORDS.

TUESDAY, SEPT. 12TH.

The Royal Assent.

Their lordships assembled on this day to hear Her Majesty's assent given to a number of Bills which had passed both Houses. Amongst them were the following, which thereupon became Acts: The Contagious Diseases (Animals) (Swine Fever) Act, the Public Health (London) Act, 1891, Amendment Act, and the Blackrock and Kingston Drainage and Improvement Act.

THE HOUSE OF COMMONS.

FRIDAY, SEPT. 8TH.

Cholera.

Replying to a question put by Mr. Knowles, Sir Walter Foster said that a careful inquiry into the case of Mrs. Bayley had failed to discover any connexion between it and any cholera infection, although a scientific investigation had given a very unfavourable aspect to the case. Dr. Sweeting, one of the Local Government Board's inspectors, had been instructed to communicate without delay with the vestry officials, so that measures might be taken with regard to the sanitary condition of the premises in which Mrs. Bayley lived, and he (Sir Walter Foster) had no doubt that those measures had already been adopted.—On the 11th inst. the subject of cholera in its general incidence was brought under notice by a question put by Mr. Knowles, to which Sir Walter Foster replied that the information to hand was so far satisfactory. There had been no deaths at Hull, and only a few cases were at present in hospital. At Grimsby, on the 10th, two fresh cases had occurred, but no notice had been given of the occurrence of a fatality in connexion with the disease. At other places some cases which had been regarded as choleraic had been found on investigation to be free from the symptoms of cholera. As to the case reported from Boston, microscopical and bacteriological examination went far to show that the patient had been attacked by the dreaded disease.

SATURDAY, SEPT. 9TH.

The Health Condition of Canadian Cattle.

In Committee of Supply Dr. Farquharson called attention to the doubt which existed as to the nature of the disease which affected Canadian cattle. He would like the doubt to be removed, and regretted that the invitation of the Canadian Government to send out two experts to investigate the question had not been accepted.—Mr. T. H. Bolton and Colonel Nolan supported the view taken by Dr. Farquharson.—Mr. Gardner, in his reply to various questioners on subjects coming under the vote to complete the sum of £50,359 for the Board of Agriculture, dealt shortly with the matter raised by the above-mentioned hon. members, and said that the Committee had in no way shut the door against the due investigation of the disease affecting Canadian cattle.

The Lunacy Commission.

At the same sitting of Committee of Supply a vote to complete the sum of £15,132 for the Lunacy Commission was agreed to.

MONDAY, SEPT. 11TH.

Unwholesome Food.

Mr. J. Rowlands asked the Home Secretary if his attention had been drawn to a case heard at the Southwark Police-court lately in which the parish authorities had been compelled by law to bring five cartloads of putrid fish through the streets in order to have the fish condemned.—Mr. Asquith replied that he was informed by the magistrate that in his view of the law he had power to condemn only that which he had seen himself. He (Mr. Asquith) thought that in that respect the law was in an unsatisfactory state and he would consider what could be done to amend it.

Anthrax and Swine Fever.

On the vote for the Board of Agriculture in the report of Supply, Captain Naylor-Leyland said there were two diseases increasing every year—anthrax and swine fever—and the House ought to know if the Government were prepared to deal with them.—Mr. Gardner said he had issued a circular with regard to anthrax which he believed would meet the views of the hon. gentleman.—With regard to this disease a question was asked by Mr. Jeffreys on Tuesday, who wished to know if there had been any fresh attacks of anthrax in the United Kingdom, and what steps had been taken to arrest its spread.—Mr. H. Gladstone said that the number of fresh attacks reported during the three weeks ending the 2nd inst. had been 11, 18 and 13 respectively. The business of enforcing the provisions of the law respecting anthrax rested with the various local authorities under the Contagious Diseases (Animals) Act. A circular letter had, however, been addressed to those authorities advising them as to the nature of the disease and the best means of arresting its spread.

TUESDAY, SEPT. 12TH.

Small-pox in the Metropolis.

In answer to a question put by Mr. Benn on this subject, Sir Walter Foster said he believed it to be true that a large proportion of the persons admitted into the hospitals of the Asylums Board on account of small-pox were of the vagrant class. The provisions of the Public Health (London) Act with reference to the sanitary condition of shelters such as those provided by the Salvation Army applied to those refuges equally with those which bore on dwelling-houses in general. The right hon. gentleman then cited a few of the provisions of the Act in question.

London Bakehouses.

Mr. Cremer drew attention, by a question addressed to the Home Secretary, to the unhealthy condition of many of the London bakehouses and the necessarily unwholesome state of the bread which is manufactured in such places, and asked if the power to remedy the evils complained of rested with the local authorities or with the Home Office.—Mr. Asquith said the jurisdiction over bakehouses was in 1883 transferred from the Home Office to the local sanitary authorities. In London the matter was regulated by Section 26 of the Public Health (London) Act, 1891. If the Local Government Board should represent to him (Mr. Asquith) that there existed in any district a failure of duty on the part of any local authority, he should probably feel it to be his duty to exercise the powers conferred upon him by statute.

Westminster Drainage.

In reply to Sir H. Roscoe, Mr. Shaw Lefevre, after referring to the recent cholera case in Westminster, said he had decided on more general grounds to communicate with the proper authorities on the subject of the need of more efficient ventilation of the system of drains under their control. It would seem, however, that the desired arrangements would not be complete without an improvement in the drains under the charge of the Westminster sanitary authority.

Feeding and Clothing of the Army.

In committee of Supply on the vote for £2,622,400 for provisions, forage and other supplies, a running fire of questions were addressed to ministers chiefly concerning the rations and clothing of the soldiers and the forage of the horses. These questions embodied complaints of the cooking provided for the men and the large amount of frozen meat they were compelled to consume.—Mr. Woodall explained that the character of the meat served out to the troops had received the most careful consideration by the military authorities. As to refrigerated meat, the experience of public institutions showed that that kind of diet was as nutritious as could be wished.—Mr. Campbell-Bannerman said the soldiers appeared to be perfectly satisfied with the food.—The statements of the right hon. gentlemen appeared to be so satisfactory to hon. members that the vote was agreed to by a majority of 141 against 31.

The Local Government Board.

On the vote to complete the sum of £165,621 for the Local Government Board, a long conversation ensued, chiefly turning upon the question of the best method of dealing with the unemployed.—Mr. H. Fowler, in reply to various interrogators, entered into a somewhat elaborate review of the history of the old method of dealing with the unemployed poor. The reform of the Poor law in 1834 he regarded as one of the most beneficent reforms of the present century. A wish had been expressed that the Local Government Board should be entrusted with greater powers than it already possessed and with more money to spend; but it was right to say that the Treasury had not withholden from the Board the means necessary to carry on its important work. Thus it was enabled to provide two permanent and four temporary medical inspectors and an additional temporary engineering inspector to meet the emergency connected with a possible cholera epidemic. The medical department was most energetic and the Board was receiving continued and ungrudging support from the local authorities throughout the country.—The vote was then agreed to.

WEDNESDAY, SEPT. 13TH.

County Medical Officers and Private Practice.

On the vote to complete the sum of £8830 for the Scotch Board of Supervision, Dr. Farquharson entered a protest against the withdrawal of the Board's circular prohibiting county medical officers from engaging in private practice.—Sir G. Trevelyan said it had been found impossible to enforce the prohibition in all cases. Exceptions to the provision were obliged to be made, and it seemed desirable that the medical grant should be bestowed on counties in which the sanitary work of the medical officer was of superior excellence. The right hon. gentleman added, in reply to a suggestion from Sir C. Cameron, that he hoped the first measure of importance to be introduced by the Scotch department would deal with the reorganisation of the Board of Supervision, which was defective inasmuch as it was destitute of the power to inquire into and regulate matters connected with health.

THURSDAY, SEPT. 14TH.

Lunatic Paupers in Ireland.

Mr. John Morley, in reply to a question by Mr. Knox referring to the condition of lunatics in Ireland, said the incidence of taxation respecting the maintenance of pauper lunatics in district lunatic asylums and in workhouses was as stated in the question, but he understood that the principal obstacle in the way of the transfer of inmates of unsound mind from workhouses to district asylums lay in the fact that these latter institutions were so overcrowded as to afford no accommodation for these extra patients. The subject had been fully dealt with in the report of the Departmental Committee on Irish Lunacy Administration, which was presented to Parliament in 1891. As regards the state of Belfast, he was informed that the board of governors were providing increased accommodation, and it was expected that this extra accommodation would be completed in the course of a couple of weeks or so. The workhouse buildings were also being extended with a similar object. He could assure his hon. friend that the whole question was receiving most careful attention. He hoped to have an early opportunity of conferring with the inspectors and ascertaining what steps might be taken with the least possible delay to lessen the overcrowding of these institutions.

The Progress of Cholera.

Mr. Henry Fowler, in answer to Mr. Macdonald, said the duty of seizing and where necessary obtaining an order of the justices for the destruction of articles of food which were not fit for human consumption devolved upon the local sanitary authorities and not upon the Local Government Board. He was informed that the authorities of the Strand district of the city of London were exercising great care in the supervision of this matter. He might be allowed to say here that during this crisis the local authorities everywhere were doing everything they could to carry out the directions of the Local Government Board.

Mr. Morton asked whether it was not the case that all the fruit coming to London was inspected at all times by the sanitary authority of the port of London?

Mr. Fowler said that the hon. gentleman, being a member of the Board, knew more about this subject than he did. He could not answer the question, but he thought the sanitary authority of the port of London was pre-eminently distinguished on the present occasion for the manner in which it had discharged all its duties.

In reply to further questions, the right hon. gentleman said that the case at Ashbourne appeared to be a serious one. There had been thirteen attacks of what he would not put higher than choleraic diarrhœa, and there had been eight deaths. All the thirteen attacks had occurred in the same courtyard. All the occupants of the place drank from one well, the water of which he was afraid was rather suspicious. He believed the local authority were taking all possible precautions and the Board had no information of any spread of the disease beyond this courtyard. The general situation, he might say, was satisfactory. They had received reports from all parts of the kingdom and the House might rest assured that affairs were mending, not to put it any stronger, and not retrograding at all.

Mr. Powell Williams asked whether there had been any scientific inquiry at Ashbourne.

Mr. Fowler replied that the case would be fully investigated. Wherever there was an outbreak the Board sent down a medical officer, and he was quite sure that the medical profession would give every assistance they could in such a matter as this.

The Case of Dr. Gregg.

Mr. T. W. Russell asked the Under Secretary of State for Foreign Affairs whether he could give any explanation as to the delay on the part of the Chinese Government in settling the admitted claims of Dr. Gregg.—Sir Edward Grey said that the delay was due to difficulties which had arisen between the central and the local authorities in China. He admitted that the delay had been deplorable, but it was only comparatively recently that Her Majesty's Government had persuaded the Chinese Government to admit the principle of the claim. There was no intention on the part of Her Majesty's Government to let the claim drop.

IN THE COMMITTEE ROOMS.

THE OPIUM COMMISSION.

Friday, Sept. 8th.

On Friday, the 8th inst, the Royal Commission appointed to inquire into the various questions connected with the cultivation of the poppy and the manufacture and sale of opium in British India held its

first sitting in Committee Room A of the House of Lords, under the presidency of Lord Brassey. The other Commissioners present were Sir James Lyall, Sir William Roberts, Mr. R. Mowbray, M.P., and Mr. Arthur Pease, whilst Sir C. Bernard acted as secretary. The order of reference was very full and included most of the points on which information is sought to be obtained.

Sir JOSEPH PEASE, M.P., was the first witness. He recounted the history of the Society for the Suppression of the Opium Traffic, of which he had been President since the death of the late Lord Shaftesbury. The evidence of this witness went to show that whilst the Society which he represented were desirous that Indian opium should be kept out of China, the Indian Government had taken means to foster the consumption of the drug and were buying the Malwa opium, which could be manufactured in a form suitable for local consumption, whilst its sale was advertised in carriages on State railways. He thought it was highly objectionable that the Indian Government should reap a profit from a trade which was detrimental to the health interests of the human race. In reply to a question put by the Chairman, the witness said it was curious to note that in India, with rare exceptions, the drug had never been fostered as a medicine, the supply being obtained from Persia and Turkey. As to the objection that if India did not supply China with opium, China would supply herself, he contended that if Indian opium had been kept out of China the home growth would have lacked the stimulus it had received. Quoting statistics as to the consumption of opium in our dependency, he thought the evident tendency in India was to an increase in the local consumption. In answer to another question the witness said he was prepared to admit that there was now much greater care exercised by Government officials in India in respect of this matter than formerly existed. He then referred to the views put forward by different bodies of religionists against the use and cultivation of the drug save as a medicine, and concluded by replying to questions bearing on various matters which arose in the course of his examination.

Professor JAS. LEGGE, Professor of the Chinese Language and Literature at Oxford, was the next witness. In reply to the Chairman, he said he had resided for thirty years amongst the Chinese as a missionary and in all his experience he had never met with one person who ever spoke of any benefit derivable from opium smoking, but on the contrary there were endless stories of ruin, disease and death as results of the habit. There was no class in China free from the injurious effects of the use of opium, but the evil results manifested themselves sooner in the poor than in the well-to-do. His experience was that it was very difficult for one who had indulged in opium-smoking to rid himself of the habit. He had often heard indignant expressions from the Chinese against England for forcing opium upon them whilst the use of the drug was forbidden in England except as a medicine. In reply to Sir J. Lyall, the witness said very little alcoholic liquor was drunk in China. During his long experience he had seen but one Chinaman drunk. These people had smoked tea for 2000 years. He believed the proportion of opium-smokers in China was not more than 20 per cent., but the number was largely increasing.

Dr. JAMES L. MAXWELL, Secretary to the Medical Missionary Society in London, was next called. He said he had been for many years a medical missionary in Formosa, where all persons, men and women, smoked tobacco. He had never heard tobacco spoken of as a curse, but the Chinese spoke of opium-smoking as a vice and a curse. After indulgence in the use of the drug a man began to gape and yawn and to show general lassitude; moisture exuded from his eyes and nostrils, he began to suffer choleraic pains, his bones ached and he was unable to control his movements; then sleeplessness ensued and the smoker was thoroughly miserable. If he could not command his usual supply of the drug he would in many cases kill himself.

Saturday, Sept. 9th.

The Royal Commission met again on the 9th inst., when further witnesses were examined.

The Rev. J. S. ADAMS, of the American Baptist Mission, gave his testimony to the prejudicial effects of opium-smoking in China. He described the effects of the persistent indulgence in the habit as enfeeblement of the intellect and ruin of the moral character. The measures adopted in Upper Burmah had not been successful, and he felt sure that the consumption of opium had been increasing in that possession and was having a disastrous effect on the population. He was aware that many persons held an opinion different from that entertained by himself. Opium-smokers might live as long as those who do not smoke, but in times of epidemics the former class fell victims more readily to disease.

The Rev. J. HUDSON TAYLOR, M.R.C.S., founder and general secretary of the China Inland Mission, was then called. He described the evil effects of opium-smoking on the human frame. If a husband and wife both used the drug the children were generally very feeble. In his opinion opium-smokers did not, as a rule, live so long as other people. During recent years the use of the drug had greatly increased. He had never been in a province in China in which the action of the British Government with regard to the encouragement of the use of opium had not been employed as an argument against Christianity.

The Rev. C. FENN, of the Church Missionary Society, then gave evidence, which was much in accord with that given by the former witnesses. Lord Brassey asked the witness if he knew that the English Government had instructed Sir J. Fergusson to make the declaration that never again would a shot be fired by England to force opium upon China. "I think," said the witness, "that that declaration is one that in course of time might be productive of good results, but they would be immensely accelerated by a measure stopping the export of opium." In answer to Sir J. Lyall, who asked the witness if he were aware that the prohibition of that export would result in a loss to the Indian revenue of five or six millions sterling a year, Mr. Fenn said he was aware that that action would result in great loss, but material considerations should give way to those which concerned the moral welfare of the people.

The Rev. G. Pearsy and Mr. Alexander having given evidence, which was much in keeping with that advanced by former witnesses, the Commission adjourned.

WEDNESDAY, SEPT. 13TH.

The sittings of the Royal Commission were resumed on Wednesday, when Mr. BENJAMIN BROOMHALL, general secretary of the China Inland Mission, gave evidence. The witness, who stated that he had not resided in China, said that the information he had received from missionaries on the subject of opium-smoking had left on his mind the profound conviction that the effects of indulgence in the habit were disastrous in the extreme, physically, morally and socially; that politically the encouragement of the opium trade was a great blunder; that the promotion of the growth of the poppy and of the indulgence in smoking the produce of the weed threatened the very existence of the Chinese empire; that the habit retarded the progress of Christianity, and so on. The general tendency of the information he had received, said the witness, was to the effect that the consumption of Indian opium was worse in its results on the people than that of the native grown. The evidence of Mr. Broomhall extended to considerable length and included in his replies to questions put by members of the Commission details for the most part in keeping with the points mentioned above.

Mr. GRAHAM BROWN was then called, and in reply to a question put by the Chairman said he had been for more than six years a missionary at Lan-Chau, the capital of the province of Kan-Suh. Opium was specially grown there. The practice of opium-smoking had greatly increased during the last fifty years, and now, according to native testimony, eight or nine tenths of the adult male population were opium-smokers, whilst probably six-tenths of the women indulged in the habit. About the year 1875 the man who reconquered Chinese Turkestan after Yakoob Beg had revolted prohibited opium-smoking, and for that purpose adopted the drastic measure of slitting the smokers' lips transversely so that the lips could not close around the pipe. This penalty had a great effect. Taking opium was a favourite method of committing suicide. At the time when influenza was devastating the province, and when no coffins could be obtained for the purpose of receiving the bodies of the victims to the disease, it was remarked that the opium-smokers to a large extent escaped its ravages. His belief was that if the Indian Government were to prohibit the export of the drug the mandarins of Ho-Nan province would do their utmost to put down the vice.

The Rev. A. ELWIN, who had been a missionary in China for twenty-three years, gave testimony similar to that furnished by the former witnesses. In the city of Han-Chau and its neighbourhood the labourers were not wanting in physical power. Twenty years ago one scarcely saw an opium shop in the place, but now there were thousands. The larger proportion of the opium used in the city was of Indian growth and came from Shanghai and Ning-po. He endorsed everything which had been said respecting the ruinous effects of opium-smoking on the Chinese. The drug was their meat and drink.

Mr. MARCUS WOOD, of the China Inland Mission, had travelled through several provinces in Central China and testified to the fact that the prevalence of opium-smoking was productive of great harm to the inhabitants. The Chinese hated Englishmen because of their connexion with the encouragement of the growth of opium. He urged that the Indian Government should prohibit the exportation of the drug into China.—Sir James Lyall inquired about the practice in Chinese society of offering every guest who came into the house a pipe of opium. The witness replied that the custom had become very common, but was not so prevalent in the part in which he had resided.—Sir William Roberts remarked that there was much evidence to show that physical degeneration had ensued in some Eastern parts from the increasing use of opium.

Mr. FREDERICK BROWN had been for ten years a missionary in China and had witnessed great evils resulting from the prevalence of opium-smoking. Some of the more intelligent of the Chinese had expressed their abhorrence of the trade in the drug and had prepared a petition to the Queen, written on white satin, but its presentation had been rendered impossible.

Brigade-Surgeon PRINGLE was the next witness. He said he had been a sanitary officer in the N.W. Provinces of India for twenty years. He considered that opium as a medicine was invaluable, but as a dietetic it was unsuitable. Self respect was a barrier against India becoming a victim to the pernicious habit of opium-smoking. A native would feel that he had lost caste if he indulged in the practice. He had been for some time in a malarial district in India and he never prescribed opium, but preferred quinine as a remedy against the prevalent ailment. Unlike the craving for alcohol the feeling engendered by opium-smoking was that of intense agony. He would suggest that opium should be cultivated under the supervision of the Government and allowed to be used only as a medicine.

Dr. SWANSON, a Presbyterian missionary to China, Mr. DONALD MATHESON and Dr. GAULT, who had had some experience as a medical practitioner in China, also gave evidence, which was in the main confirmatory of that given by former witnesses. The Commission adjourned until Thursday, the 14th inst.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ALFORD, H. J., M.D. Lond., M.R.C.S., has been reappointed Medical Officer of Health for the Taunton Rural and Urban Sanitary Districts.

BARNES, E. G., M.D. Lond., M.R.C.S., has been reappointed Medical Officer of Health for the Hartismere Rural Sanitary District of the Hartismere Union.

BOYD, A. B., M.B., B.Ch. Oxon., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician to the Radcliffe Infirmary, Oxford.

BRAY, P. DEAN, M.R.C.S., has been appointed Health Officer for the Borough of Carisbrook, Victoria, Australia.

BUBB, WILLIAM, M.R.C.S., L.R.C.P. Lond., has been appointed Third Assistant Medical Officer to the Worcester County and City Lunatic Asylum.

CAUDWELL, F. B. H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Coggeshall Sanitary District of the Braintree Union.

COATES, H., L.R.C.P. Lond., M.R.C.S., has been reappointed Honorary Surgeon to the Salisbury General Infirmary.

ECCLES, G. T., M.B., B.C. Camb., has been appointed Medical Officer to the Workhouse, Braintree Union.

FAREBROTHER, H. J. IL., L.D.S., R.C.S., has been reapponted Dental Surgeon to the Sallsbury General Infirmary.

GILCHRIST, ELIZABETH T., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Resident Medical Officer of Grove-street Hospital for Women and Children, Edinburgh, for one year.

HEASMAN, W. G., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Wokingham Sanitary District and the Workhouse of the Wokingham Union.

HODGSON, J. C., M.B., C.M. Glasg., has been appointed Medical Officer for the Schools of the Cockermouth Union.

KELLAND, J., M.B., C.M., L.R.C.P., L.R.C.S. Edin., has been re-appointed Honorary Physician to the Salisbury General Infirmary.

KINGSCOTE, E., M.B., C.M., L.R.C.S. Edin., has been reappointed Honorary Surgeon to the Salisbury General Infirmary.

KNOWLES, THOS., M.B., C.M. Edin., has been appointed Medical Officer for the Kirbys Malham Sanitary District of the Settle Union.

LEE, F. F., M.B. Lond., F.R.C.S., has been reappointed Honorary Physician to the Salisbury General Infirmary.

LUCKHAM, L. S., M.R.C.S., has been reappointed Honorary Surgeon to the Salisbury General Infirmary.

LYON, A. C., M.D., C.M. Aberd., has been appointed Medical Officer for the Waterbeach Sanitary District of the Chesterton Union.

MAGORIS, W. O., L.R.C.P., L.R.C.S., L.M. Edin., has been appointed Medical Officer for the Shelford Sanitary District of the Chesterton Union.

MARSHALL, C. R., M.B., Ch.B. Vict., has been appointed House Physician to the Royal Infirmary, Manchester.

MARTIN, A., M.B. Lond., M.R.C.S., has been appointed House Surgeon to the General Hospital, Birmingham.

PARK, D. S., L.R.C.P., F.R.C.S. Edin., has been reappointed Medical Officer of Health for the Houghton-le-Spring Urban Sanitary District.

ROGERSON, JOHN, L.R.C.S., L.R.C.P., L.M. Edin., L.F.P.S., L.M., D.P.H. Glasg., has been appointed Acting Physician to Larkhall Fever Hospital, under the County Council of Lanarkshire.

SCOTSON, F. C., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Royal Infirmary, Manchester.

SKIPWORTH, H., L.R.C.P., L.M. Irel., M.R.C.S., has been reappointed Medical Officer of Health for the Quorndon Urban Sanitary District.

SMITH, J. W., M.B., C.M. Edin., F.R.C.S. Eng., has been reappointed Resident Surgical Officer to the Royal Infirmary, Manchester.

WATKINS, PITCHFORD W., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Bridgnorth Infirmary.

WATSON, D., M.B., C.M. Glasg., has been appointed Medical Officer for the North Welney Sanitary District of the Downham Union.

WEATHERBE, L. J., M.B., C.M. Edin., has been appointed Medical Officer for the Kimberworth Sanitary District and Public Vaccinator for the Rotherham and Kimberworth Sanitary Districts of the Rotherham Union, vice Walker.

WILKS, H. L. E., L.R.C.P. Lond., M.R.C.S., has been reappointed House Surgeon to the Salisbury General Infirmary.

WYLIE, ANDREW, M.B., M.S. Glasg., has been appointed Medical Officer and Public Vaccinator for the Joint Township of Marsden, Yorks.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ANCOATS HOSPITAL, Manchester.—Resident Junior House Surgeon. Salary £60, with board and washing.

BOROUGH OF LOWESTOFT.—Medical Officer of Health and Medical Attendant at the Sanatorium for the Urban and Port Sanitary Districts of Lowestoft. Salary for the Urban Sanitary District £80 per annum, for the Port Sanitary District £20 per annum and as Medical Attendant at the Sanatorium £50 per annum. Applications to the Town Clerk, Lowestoft.

COUNTIES' ASYLUM, Carlisle.—Junior Assistant Medical Officer. Salary £80 per annum, with board.

DUNDEE ROYAL INFIRMARY.—Qualified (non-resident) Dispenser. Salary £60. Applications to the Secretary, Dr. Gordon Stewart, Solicitor, Dundee.

LEITH HOSPITAL.—House Surgeon for six months. Salary at the rate of £50 a year, with board in the Hospital.

LEITH HOSPITAL.—Surgeon for the Out-door Department for six months. Salary at the rate of £50 a year, with board in the Hospital.

LEITH HOSPITAL.—House Physician for six months. Salary at the rate of £50 a year, with board in the Hospital.

LONDON FEVER HOSPITAL, Liverpool-road, N.—Assistant Resident Medical Officer.

MANCHESTER CLINICAL HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham-hill-road.—Honorary Assistant Surgeon. Applications to the Secretary, 38, Barton Arcade, Manchester.

MANCHESTER CLINICAL HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham-hill-road.—House Surgeon. Salary £80 per annum, with apartments and board. Applications to the Secretary, 38, Barton Arcade, Manchester.

METROPOLITAN HOSPITAL, Kingaland-road, N.—House Physician for six months. Salary at the rate of £60 a year.

METROPOLITAN HOSPITAL, Kingaland-road, N.—House Surgeon for six months. Salary at the rate of £60 a year.

METROPOLITAN HOSPITAL, Kingaland-road, N.—Assistant House Surgeon for six months.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART AND PARALYSIS, 32, Soho-square.—Two Clinical Assistants for three months.

NORTHUMBERLAND COUNTY ASYLUM, Morpeth.—Clinical Clerk. Board and residence provided.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at the rate of £40 per annum, with board and lodging.

ROYAL ISLE OF WIGHT INFIRMARY AND COUNTY HOSPITAL, Ryde, I. W. House Surgeon and Secretary. Salary £60 per annum, with board, lodging and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—House Surgeon. Salary £80 per annum, with board and lodging. Stimulants and washing not provided.

ST. MUNGO'S COLLEGE, Glasgow.—Chair of Chemistry.

SWANSEA GENERAL AND EYE HOSPITAL.—Clinical Assistant for six months. Remuneration, board, lodging and washing provided.

WHARNEFORD HOSPITAL, Leamington Spa.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—House Physician (who will also be required to act as Chloroformist, Pathologist and Medical Registrar). Salary £100 per annum, with board, lodging and washing.

VICTORIA HOSPITAL, Burnley.—Resident Medical Officer. Salary £80, rising £10 per annum to £100. All found. Applications to Mr. Joshua Rawlinson, Hon. Sec., 7, Grimshaw-street, Burnley.

Births, Marriages and Deaths.

BIRTHS.

CROMBIE.—On Sept. 6th, at Highden, Sidcup, the wife of James Crombie, M.B., B.Sc., of a son.

FRASER.—On Sept. 6th, at Devon House, Mostyn-road, Brixton, the wife of E. Fraser, M.D., of a son.

HURRY.—On Sept 12th, at Abbotsbrook, Reading, the wife of Jamieson B. Hurry, M.A. M.D. Cantab., of a son.

PEART-THOMAS.—On Sept. 4th, at Heckmondwike, Yorks, the wife of W. Peart-Thomas, M.B., C.M., of a son.

MARRIAGES.

BROWNE—GORMAN.—On Sept. 12th, at University-road Church, Belfast, James Arthur Browne, M.B., Guilford-street, Russell-square, W.C., to Anna Mary Threlkeld, eldest daughter of the Rev. Wm. Gorman, of Belfast.

CALEY—AUSTIN.—On Sept. 7th, at Lingfield, Surrey, Guthrie Neville Caley, M.D., of Ealing, to Ethel Mary, youngest daughter of Sydney Charles Austin, M.R.C.S., of Lingfield.

DYER—SHEPHERD.—On Sept. 12th, at St. Jude's Church, South Kensington, by the Very Rev. G. W. Kitchin, D.D., Dean of Winchester, assisted by the Rev. W. H. Hornby Steer, M.A., Arthur Victor, only son of the late Rev. Charles James Dyer, M.A., Rector of Barrowden, Stamford, to Lizzie (Lee), only surviving daughter of Mrs. E. Shepherd, Barkstone-gardens, South Kensington.

MUSSON—SLATER.—On Sept. 6th, at Christ Church, Walmsley, by the Rev. T. H. A. Morris, assisted by the Rev. J. Stott, Vicar of the Parish and the Rev. R. C. W. Croft, Vicar of Blackrod, Alfred William Musson, B.A., M.B. Cantab., son of William Edward Musson, of Mayfield, Clitheroe, to Alice Maude, daughter of William Slater, of Holmses, Dunsear, near Bolton-le-Moors.

DEATHS.

BRADLEY.—On Sept. 6th, at Preston, Lancs., William Bradley M.R.C.S., aged 72 years.

CARTER.—On Sept. 12th, at Homedale, Fulham, Henry Carter, surgeon, in his 84th year.

HEATON.—On Sept. 11th, at Woodstock-road, Bedford-park, W., Charles William Heaton, Lecturer on Chemistry at Charing-cross Hospital, aged 58.

WIELOBYCKI.—On Sept. 7th, at Acacia-road, St. John's-wood, N.W., Severin Wielobycki, M.D., aged 100 years and eight months.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages and Deaths

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, September 14th, 1893.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Sept. 8	29·75	S.W.	63	60	116	71	56	..	Cloudy
,, 9	29·87	N.W.	56	53	110	66	43	·12	Cloudy
,, 10	29·99	N.E.	58	53	102	65	50	..	Overcast
,, 11	30·21	S.E.	57	54	109	67	50	..	Overcast
,, 12	30·32	E.	58	54	105	63	51	..	Fine
,, 13	30·24	S.E.	52	49	103	71	47	..	Fine
,, 14	30·22	W.	61	61	101	72	51	..	Fine

Medical Diary for the ensuing Week.

Monday, September 18.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays, at the same hour.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; and on Tuesday, Wednesday, Friday, and Saturday at the same hour.
ST. MARK'S HOSPITAL.—Operations, 2 P.M.; Tuesday, 2.30 P.M.
ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2.30 P.M.; Friday, 2 P.M.
ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, daily at 10 A.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M.; and each day at the same hour.
CHELSEA HOSPITAL FOR WOMEN.—Operations, 2 P.M.; Thursday, 2 P.M.
HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.; and on Thursday at the same hour.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.
UNIVERSITY COLLEGE HOSPITAL. Ear and Throat Department, 9 A.M Thursday, 9 A.M. Eye Department, 2 P.M.

Tuesday, September 19.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.
CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 2.30 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Skin Department, 1.45; Saturday, 9.15.
ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electrotherapeutics, same day, 2 P.M.

Wednesday, September 20.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.
MIDDLESEX HOSPITAL.—Operations, 1.30 P.M.; Saturdays, 2 P.M. Obstetrical Operations, Thursdays, 2 P.M.
CHARING-CROSS HOSPITAL.—Operations, 3 P.M., and on Thursday and Friday at the same hour.
ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.
LONDON HOSPITAL.—Operations, 2 P.M.; Thursday and Saturday, same hour.
ST. PETER'S HOSPITAL, COVENT-GARDEN.—Operations, 2 P.M.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.
GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 1.30 P.M. Dental Department, 9.30 A.M. Eye Department, 2 P.M.
ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.
CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M Surgical Visits on Wednesday and Saturday at 9.15 A.M.

Thursday, September 21.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Ear and Throat Department, 9 A.M. Eye Department, 2 P.M.

Friday, September 22.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Eye Department, 2 P.M.

Saturday, September 23.

UNIVERSITY COLLEGE HOSPITAL.—Skin Department, 9.15 A.M.

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

PUBLISHER'S NOTICE.

IN order to facilitate the work of reference to the volumes of THE LANCET, we have arranged to publish duplicate copies of the Index to each half-yearly volume in a form in which they may be subsequently filed or bound together. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Publisher of THE LANCET.

CORONERS' NECROPSIES.

To the Editors of THE LANCET.

SIRS,—In reply to "House Surgeon" in the last issue of THE LANCET you say, "It is compulsory on a house surgeon to make a post-mortem examination on the order of a coroner." Is this correct? I believe a house surgeon may refuse to make a necropsy personally and this opinion is also held by others, including to my knowledge a well-known coroner (a lawyer). Though most house surgeons prefer to perform their own post-mortem examinations, there are obvious reasons why this may be very undesirable at times. I should like, therefore, to know exactly. It may not be diplomatic to refuse, but I doubt the compulsory effect of a coroner's order on any surgeon. Should the house surgeon say that he is unable to conduct the examination is he bound to provide a substitute, and if so can his substitute (provided he is not a resident officer) claim a fee, or must the coroner himself arrange for another surgeon? Of course no house surgeon can claim a fee for either post-mortem examination or evidence at an inquest, though I fail to see the justice of the law on this point.

I am, Sirs, yours faithfully,

Sept. 11th, 1893. ANOTHER HOUSE SURGEON.

*** Legally, a coroner can order any qualified medical man to make a post-mortem examination and to give evidence at an inquest. The Coroners Act, 6 and 7 Will. 4, c. 89, s. 1, contains the following provision: "Whenever it shall appear that the deceased person was attended at his death or during his last illness by any legally qualified medical practitioner it shall be lawful for the coroner to issue his order for the attendance of such practitioner as a witness; and if it shall appear that the deceased person was not at or before his

death attended by any legally qualified practitioner it shall be lawful for the coroner to issue such order for the attendance of any legally qualified medical practitioner in actual practice in or near the place where the death has happened; and it shall be lawful for the coroner .... to direct the performance of a post-mortem examination by the medical witness or witnesses summoned to attend the inquest." A medical man cannot be summoned if a charge on oath has been made against him of improper or negligent treatment of the person on whose body the inquest is to be held. A house surgeon has no power to provide a deputy without the consent of the coroner. If the coroner orders a practitioner not resident in the institution where the deceased died to make a post-mortem examination or to give evidence he must pay the usual fees. Of course, there are occasions on which it is not desirable for a house surgeon to execute the duties in question, but this would not relieve him from his legal liability. Coroners are answerable to the Lord Chancellor for any abuses of their office, although such abuses are not what may be termed illegal.—ED. L.

Privat-Docent.—The words are the memorable ones pronounced by Professor Moriz Schiff on the recent celebration of his jubilee at Geneva, where he holds the chair of Physiology. Speaking from his balcony to the students who, in torchlight procession, had drawn up in a semi-circle before his house, the veteran biologist said: "Aujourd'hui la physiologie pénètre dans tous les domaines: en droit, pour les idées de culpabilité et de responsabilité; en philologie et en esthétique avec M. Taine, qui a pour aïeul dans cette voie M. Herder, le poète allemand. Même la théologie devient la débitrice de la physiologie." He enlarged also on the student cherishing his individuality or independence of character, which he said "universities should develop, not stifle." Professor Schiff, some thirty years ago, had to leave his chair in Florence owing to the pressure which was brought to bear on the authorities by the anti-vivisectionists.

Mr. J. Q. Couch (Penzance).—The following pamphlets will supply the information desired:—"Facts about Vaccination," 2*d.* (Jarrold and Sons, 3, Paternoster Buildings); "The Value of Vaccination," 6*d.*, by W. Gayton, M.D. (McCorquodale and Co., Carrington-street, N.W.); "Facts concerning Vaccination" (a tract published by Allman and Son, 67, New Oxford-street); and the Supplement by the Medical Officer to the Fourteenth Annual Report of the Local Government Board, pp. 12 to 23 and pp. 26 to 30 (C-4516).

X. Y. Z. should consult a solicitor.

MEDICAL MEN AND DENTISTS: MISPLACED COURTESY.

To the Editors of THE LANCET.

SIRS,—It is high time that some one called attention to our relations with dentists. I heartily echo the remarks of "M.D., F.R.C.S.," and I think our liberality towards them is entirely misplaced courtesy. I once had a curious and appropriate experience in this connexion. I was having my teeth stopped by a West-end L.D.S. During one of my visits he recounted to me the great courtesy and liberality shown to him by one in the foremost ranks of our profession—a baronet. This latter had during an illness given him gratuitous attendance. The L.D.S. gentleman charged me half-a-guinea a tooth for stopping. Dentistry is for the most part a mechanical craft that should be carried out when necessary under the supervision of a medical man; and I am of opinion that until dentists give up advertising and shop-window shows no medical man should be allowed to practise as a dentist or should any dentist be recognised as a medical man.

I am, Sirs, yours faithfully,

Sept. 12th, 1893. SURGEON.

Davos Platz.—Our correspondent will find full information regarding Davos Platz and the influence of high altitudes upon phthisis in Dr. Tucker Wise's work on "Alpine Winter in its Medical Aspects" and in Dr. Lindsay's "Climatic Treatment of Consumption." The former work is published by Messrs. Churchill, the latter by Messrs. Macmillan and Co. There are several establishments at Davos for the treatment of phthisis, but we are unable to give their addresses.

CORONER'S COURTS.

To the Editors of THE LANCET.

SIRS,—I should be very much obliged for an answer to the following question: Is a house surgeon entitled to a fee for giving evidence at an inquest held at a public building away from the hospital on a person who died in the hospital? I had always been paid a fee before in such cases, but the other day a coroner refused me one and said that it was forbidden by law.

I am, Sirs, yours faithfully,

September 12th, 1893. B. G. S.

*** Our correspondent is not legally entitled to a fee.—ED. L.

DEATH CAUSED BY LIGHTNING IN FRANCE.

STATISTICS are before us, according to which the average number of deaths caused by lightning in France, between 1835 and 1883, amounted to 100 annually. From one year to another, however, the number of victims is very variable. In 1874, for example, there were as many as 178, whilst in 1843 there were only 48. The number of those struck, but not fatally, is about five times greater on an average than those killed outright. The year 1890 was exceptional for the frequency and violence of its thunderstorms and the number of persons struck, as well as of persons killed, shows a like increase. The effects of the "thunderbolt," as it is popularly called, are variable, according as the person is struck directly or by *contre-coup*. The lesions *en évidence* take the form of burns or lacerations, insufficient by themselves to account for death, which is sometimes instantaneous, and is sometimes preceded by an agony more or less prolonged. Pathology has not said the last word as to how death is caused. Some French physicians ascribe it to "cerebral perturbation which paralyses the bulb;" others to "electrolytic decomposition of the tissues and the liquids"; and others, again, to the "evolution of a gas in the vessels of the circulation." The bodies of persons struck by lightning present phenomena quite fantastic, in their form especially. On some the scorching assumes an almost artistic configuration, insomuch that more than one observer has traced these "designs" or "lightning drawings" not to chance, but to the "outlines of objects that happen to be in the immediate neighbourhood of the victim when struck by the thunderbolt"—the phenomenon being one of "reproduction or transference." Sometimes these figurings assume arborescent or tree-like forms. If death is not instantaneous the effects are very variable, according to the constitution or state of health of the individual or according to the circumstances in which the visitation occurs. Dr. Nothnagel, Professor of Clinical Medicine in the Vienna School, has made a special study of "stroke by lightning," and has reproduced the phenomena in question on rabbits by means of a Leyden jar. In a recent lecture he described the non-characteristic of the external manifestations of the person struck and also the first steps that should be taken for his recovery. His observations have special interest as regards the effect of the "stroke" on the brain, on the spinal marrow and on the peripheral nerves, particularly as to loss of consciousness, cerebral disturbances and ataxic complications. Shock to the visual organs and partial paralysis of the tongue—this latter being sometimes peculiarly unresponsive to treatment—were amongst the symptoms more distinctively characteristic of the lesion; others, again, bore an affinity to the nervous perturbations induced by railway collisions or by accidents which affect violently and suddenly the mental or emotional faculties.

Mr. W. F. Abbott, F.R.C.S.Edin.—We do not know of any suitable permanent home. If, however, the boy has always suffered from chorea there is presumably some mental impairment and Darenth or Earlswood Asylum would probably be available.

Manx.—The sheet would have the appearance of an advertisement of the book and possibly of its author. It seems to us better to leave passengers to obtain information in their own way and from their own medical advisers.

Mr. Chas. J. Lathbury, L.R.C.P.Lond.—Our correspondent will, we are sure, see on reflection that it would not be right for us to express an opinion on an *ex parte* statement such as he submits to us.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*North Star, Bradford Argus, Leeds Express, Dundee Courier, Barnet Press, Western Morning News, Coventry Standard, Birmingham Chronicle, Sheffield Independent, Scotsman, Newcastle Leader, Hastings News, Hull News, Glasgow Herald, Kendal Mercury, Leicester Post, Oldham Chronicle, West Middlesex Standard, Plumber and Decorator, Bournemouth Guardian, Irish News, Hertford Chronicle, City Press, Cape Argus, Scottish Leader, Sussex News, Leeds Mercury, Yorkshire Post, Bristol Mercury, Liverpool Daily Post, Morning, Local Government Chronicle, Reading Mercury, Architect, Local Government Journal, Hertfordshire Mercury, Weekly Free Press and Aberdeen Herald, Builder, Sunday Times, Sanitary Record, Citizen, Mining Journal, Surrey Advertiser, Framlingham News, Western Morning News, Carnack Chase Courier, West Middlesex Advertiser, Scarborough Post, Westerham Herald, Richmond Herald, Carlisle Journal, Brisbane Courier, Orkney Herald, Evening Citizen (Glasgow), Sheffield and Rotherham Independent, Gloucester Journal.*

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O.—The O'Connor Extension Co., London.

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Q.—Queen Margaret College, Glasgow, Hon. Secretary of; Quid Nunc.

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